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Orbit & Orchard.

ſtrong, and gives an enemy no reaſon to expect better ſucceſs by attacking one place than another. Cæſar drew his whole army in this form, when he fought againſt Labienus. The whole army of the Gauls were formed into an orb, under the command of Sabinus and Cotta, when fighting againſt the Romans. The orb was generally formed ſix deep.

ORBIT, in *Aſtronomy*, the path of a planet or comet, or the curve that it deſcribes in its revolution round its central body; thus, the earth's orbit is the curve which it deſcribes in its annual courſe round the ſun, and uſually called the *ecliptic*. See ASTRONOMY, *paſſim*.

ORCADES, the *Orkney Iſlands*. See ORKNEY.

ORCHARD, a garden-department, conſigned entirely to the growth of ſtandard fruit-trees, for furniſhing a large ſupply of the moſt uſeful kinds of fruit. For the particular management of the orchard, ſee GARDENING.

In the orchard you may have, as ſtandards, all ſorts of apple-trees, moſt ſorts of pears and plums, and all ſorts of cherries: which four ſpecies are the capital orchard fruits; each of them compriſing numerous valuable varieties. But to have a complete orchard, you may alſo have quinces, medlars, mulberries, ſervice-trees, filberts, Spaniſh nuts, berberries; likewiſe walnuts and cheſnuts; which two latter are particularly applicable for the boundaries of orchards, to ſcreen the other trees from the inſults of impetuous winds and cold blaſts. All the trees ought to be arranged in rows from 20 to 30 feet diſtance, as hereafter directed.

But ſometimes orchards conſiſt entirely of apple-trees, particularly in the cyder-making counties, where they are cultivated in very great quantities in large fields, and in hedge-rows, for the fruit to make cyder for public ſupply.

And ſometimes whole orchards of very conſiderable extent are entirely of cherry-trees. But in this caſe, it is when the fruit is deſigned for ſale in ſome great city, as London, &c. for the ſupply of which city, great numbers of large cherry orchards are in ſome of the adjacent counties, but more particularly in Kent, which is famous for very extenſive cherry-orchards; many of which are entirely of that ſort called *Kentiſh cherry*, as being generally a great bearer; others are ſtored with all the principal ſorts of cultivated cherries, from the earlieſt to the lateſt kinds.

A general orchard, however, compoſed of all the before-mentioned fruit-trees, ſhould conſiſt of a double portion of apple-trees or more, becauſe they are conſiderably the moſt uſeful fruit, and may be continued for uſe the year round.

The utility of a general orchard, both for private uſe and profit, ſtored with the various ſorts of fruit-trees, muſt be very great, as well as afford infinite pleaſure from the delightful appearance it makes from early ſpring till late in autumn: In ſpring the various trees in bloſſom are highly ornamental; in ſummer, the pleaſure is heightened by obſerving the various fruits advancing to perfection; and as the ſeaſon advances, the mature growth of the different ſpecies arriving to perfection, in regular ſucceſſion, from May or June, until the end of October, muſt afford exceeding delight, as well as great profit.

Of the Extent, Situation, and Soil for the Orchard.—As to the proper extent of ground for an orchard, this muſt be proportioned, in ſome meaſure, to the extent of land you have to work on, and the quantity of fruit required either for private uſe or for public ſupply; ſo that an orchard may be from half an acre to 20 or more in extent. Orchard.

With reſpect to the ſituation and aſpect for an orchard, we may obſerve very thriving orchards both in low and high ſituations, and on declivities and plains, in various aſpects or expoſures, provided the natural ſoil is good: we ſhould, however, avoid very low damp ſituations as much as the nature of the place will admit; for in very wet ſoils no fruit trees will proſper, nor the fruit be fine: but a moderately low ſituation, free from copious wet, may be more eligible than an elevated ground, as being leſs expoſed to tempeſtuous winds; though a ſituation having a ſmall declivity is very deſirable, eſpecially if its aſpect incline towards the eaſt, ſouth-eaſt, or ſoutherly, which are rather more eligible than a weſterly aſpect; but a north aſpect is the worſt of all for an orchard, unleſs particularly compenſated by the peculiar temperament or good quality of the ſoil.

And as for ſoil, any common field or paſture that produces good crops of corn, graſs, or kitchen-garden vegetables, is ſuitable for an orchard; if it ſhould prove of a loamy nature, it will be a particular advantage: any ſoil, however, of a good quality, not too light and dry, or too heavy, ſtubborn, or wet, but of a medium nature, of a ſoft, pliant temperature, not leſs than one ſpade deep of good ſtaple, will be proper for this purpoſe.

Preparation of the Ground.—The preparation of the ground for the reception of trees, is by trenching; or, if for very conſiderable orchards, by deep ploughing; but trench-digging, one or two ſpades, as the ſoil will admit, is the moſt eligible, either wholly, or only for the preſent in the places where the lines of trees are to ſtand, a ſpace of ſix or eight feet wide, all the way in each row, eſpecially if it be graſs-ground, and intended to be kept in the ſward; or if any under-crops are deſigned to be raiſed, the ground may be wholly trenched at firſt: in either caſe trench the ground in the uſual way to the depth of the natural ſoil; and if in graſs, turn the ſward clean to the bottom of each trench, which, when rotted, will prove an excellent manure.

In planting orchards, however, on graſs-grounds, ſome only dig pits for each tree, capacious enough for the reception of the roots, looſening the bottom well, without the labour of digging any other part of the ground.

The ground muſt be fenced ſecurely againſt cattle, &c. either with a good ditch and hedge, or with a paling-fence, as may be moſt convenient.

Method of planting the Trees.—The beſt ſeaſon for planting all the ſorts of fruit-trees is autumn, ſoon after the fall of the leaf, from about the latter end of October until December; or indeed it might be performed any time in open weather from October until March.

Chooſe principally full ſtandards, with ſtraight clean ſtems, ſix feet high; each with a branchy well-formed head, or from two or three to four or five years growth; and let ſeveral varieties of each particular ſpecies be choſen, that ripen their fruit at different times, from the earlieſt to the lateſt, according to the nature of the dif-

Orchard. ferent ſorts, that there may be a proper ſupply of every ſort regularly during their proper ſeaſon. Of apples and pears in particular, chooſe a much greater quantity of the autumnal and late ripening kinds than of the early ſorts, but moſt of all of apples; for the ſummer-ripening fruit is but of ſhort duration, only proper for temporary ſervice; but the later ripening kinds keep ſound ſome conſiderable time for autumnal uſe; and the lateſt ſorts that ripen in October, continue in perfection for various uſes all winter, and ſeveral ſorts until the ſeaſon of apples come again.

Having made choice of the proper ſorts, and marked them, let them be taken up with the utmoſt care, ſo as to preſerve all their roots as entire as poſſible; and when taken up, prune off any broken or bruiſed parts of the roots, and juſt tip the ends of the principal roots, in general, with the knife on the under ſide with a kind of ſlope outward.

If the trees have been already headed, or ſo trained as to have branched out into regular ſhoots to form each a proper head, they muſt be planted with the ſaid heads entire, only retrenching or ſhortening any irregular or ill-placed ſhoot that takes an aukward direction, or grows acroſs its neighbours, or ſuch as may run conſiderably longer than all the reſt, &c.

The arrangement of the trees in the orchard muſt be in rows, each kind ſeparate, at diſtances according to the nature of the growth of the different ſorts; but for the larger growing kinds, ſuch as apples, pears, plums, cherries, &c. they ſhould ſtand from 25 to 30 or 40 feet every way aſunder, though 25 or 30 feet at moſt is a reaſonable diſtance for all theſe kinds.

Each ſpecies and its varieties ſhould generally be in rows by themſelves, the better to ſuit their reſpective modes of growth: though for variety there may be ſome rows of apples and pears arranged alternately, as alſo of plums and cherries; and towards the boundaries there may be ranges of leſſer growth, as quinces, medlars, filberts, &c. and the outer row of all may be walnut-trees, and ſome cheſnuts, ſet pretty cloſe to defend the other trees from violent winds.

According to the above diſtances, proceed to ſtake out the ground for making the holes for the reception of the trees, which if made to range every way, will have a very agreeable effect, and admit the currency of air, and the ſun's influence more effectually.

But in planting very extenſive orchards, ſome divide the ground into large ſquares or quarters, of different dimenſions, with intervals of 50 feet wide between; ſerving both as walks, and for admitting a greater currency of air; in different quarters planting different ſorts of fruit, as apples in one, pears in another, plums and cherries in others, &c. and thus it may be repeated to as many quarters for each ſpecies and its varieties as may be convenient.

As to the mode of planting the trees: A wide hole muſt be dug for each tree, capacious enough to receive all the roots freely every way without touching the ſides. When the holes are all ready, proceed to planting, one tree in each hole, a perſon holding the ſtem erect, whilſt another trims in the earth, previouſly breaking it ſmall, and caſting it in equally all about the roots, frequently ſhaking the tree to cauſe the mould to ſettle in cloſe about all the ſmaller roots and fibres, and ſo as to raiſe the tree gradually up, that the crown of the roots may be but two or three inches below the general ſurface; and when the hole is filled up, tread it gently, firſt round the outſide, then near the ſtem of the tree, forming the ſurface a little hollow; and then, if on the top of all be laid ſome inverted turf to the width of the hole, forming it with a ſort of circular bank, three or four inches high, it will ſupport the tree, and guard the roots from drying winds and the ſummer's drought: obſerving that each tree ſtand perfectly upright, and that they range exactly in their proper rows. Orchard.

Method of improving the Fruit.—The following method is ſaid to have been ſucceſsfully employed, by a German clergyman, in promoting the growth of young trees, and increaſing the ſize and flavour of the fruit in orchards. Having planted ſeveral young plum trees in an orchard, he covered the ground, for ſome years, around the trunks, as far as the roots extended, with flax-ſhows, or the refuſe of flax when it is ſcutched or heckled; by which means theſe trees, though in a graſs-field, increaſed in a wonderful manner, and far excelled others planted in cultivated ground. As far as the ſhows reached, the graſs and weeds were choaked; and the ſoil under them was ſo tender and ſoft, that no better mould could have been wiſhed for by a floriſt.

When he obſerved this, he covered the ground with the ſame ſubſtance, as far as the roots extended, around an old plum-tree, which appeared to be in a languiſhing ſtate, and which ſtood in a graſs-field. The conſequences were, that it acquired a ſtrong new bark, produced larger and better-taſted fruit, and that thoſe young ſhoots, which before grew up around the ſtem, and which it was every year neceſſary to deſtroy, were prevented from ſprouting forth, as the covering of flax-ſhows impeded the free acceſs of air at the bottom of the trunk.

In the year 1793, he tranſplanted, from ſeed-beds, into the nurſery, ſeveral fruit-trees; the ground around ſome of which he covered, as above, with flax-ſhows. Notwithſtanding the great heat of the ſummer, none of thoſe trees where the earth was covered with ſhows died or decayed, becauſe the ſhows prevented the earth under them from being dried by the ſun. Of thoſe trees, around which the ground was not covered as before mentioned, the fourth part miſcarried; and thoſe that continued alive were far weaker than the former.

The leaves which fall from trees in autumn may alſo be employed for covering the ground in like manner; but ſtones, or logs of wood muſt be laid on them, to prevent their being diſperſed by the wind. In graſs-land, a ſmall trench may be made around the roots of the tree, when planted, in order to receive the leaves. If flax ſhows are uſed, this is not neceſſary; they lie on the ſurface of the ground ſo faſt as to reſiſt the force of the moſt violent ſtorm. The leaves which our author found moſt effectual in promoting the growth and fertility of fruit trees, are thoſe of the walnut-tree. Whether it is, that, on account of their containing a greater abundance of ſaline particles, they communicate manure to the ground, which thereby becomes tender under them; or that they attract nitrous particles from the atmoſphere; or that, by both theſe means, they tend to nouriſh the tree both above and below.

Thoſe who are deſirous of raiſing tender exotic trees from the ſeed, in order to accuſtom them to our climate, may,

Orcheſtra || Ordeal.

may, when they tranſplant them, employ flax-ſhows with great advantage. This covering will prevent the froſt from making its way to the roots; and rats and mice, on account of the ſharp prickly points of the flax-ſhows, will not be able to ſhelter themſelves under them.

ORCHESTRA, in the Grecian theatres, was that part of the *proſcenium* or ſtage where the chorus uſed to dance. In the middle of it was placed the Λογειον or *pulpit*. The orcheſtra was ſemicircular, and ſurrounded with ſeats. In the Roman theatres it made no part of the *ſcena*, but anſwered pretty nearly to the pit in our playhouſes, being taken up with ſeats for ſenators, magiſtrates, veſtals, and other perſons of diſtinction. The actors never went down into it. See THEATRE.

ORCHIA LEX, inſtituted by Orchius the tribune in the year of Rome 566. Its intention was to limit the number of gueſts that were to be admitted at an entertainment; and it alſo enforced, that during ſupper, which was the chief meal among the Romans, the doors of every houſe ſhould be left open.

ORCHIS, FOOL-STONES; a genus of plants belonging to the gynandria claſs, and in the natural method giving name to the ſeventh order, *Orchideæ*. See BOTANY *Index*.

ORCUS, god of the infernal regions, the ſame with Pluto, ſo called from the Greek word ορχος, ſignifying a "tomb or ſepulchre," or from ορκος, "an oath by the river Styx." The ancients gave this name to all the divinities of the infernal regions, even to Cerberus. There was a river of the ſame name in Theſſaly, which took its riſe from the marſhes of the Styx, and the waters of which were ſo thick that they floated like oil upon the ſurface of the river Peneus, into which they diſcharged themſelves. This river probably ſuggeſted to the poets the idea of the infernal abodes, which they denominated *Orcus*. This deity has been confounded with Charon, he had a temple at Rome.

ORDEAL, an ancient form of trial. See TRIAL.—It was an appeal to the immediate interpoſition of divine power, and was particularly diſtinguiſhed by the appellation of *judicium Dei;* and ſometimes *vulgaris purgatio*, to diſtinguiſh it from the canonical purgation, which was by the oath of the party. There were two ſorts of it more common than the reſt, at leaſt in Europe; fire-ordeal, and water-ordeal. The former was confined to perſons of higher rank, the latter to the common people. Both theſe might be performed by deputy; but the principal was to anſwer for the ſucceſs of the trial; the deputy only venturing ſome corporal pain, for hire or perhaps for friendſhip. - Ordeal.

That the purgation by ordeal, of ſome kind or other, is very ancient, admits not of a doubt; and that it was very univerſal in the times of ſuperſtitious barbarity, is equally certain. It ſeems even to have been known to the ancient Greeks; for in the Antigone of Sophocles, a perſon ſuſpected by Creon of a miſdemeanour, declares himſelf ready "to handle hot iron and to walk over fire" in order to manifeſt his innocence; which the ſcholiaſt tells us was then a very uſual purgation. And Grotius gives us many inſtances of water-ordeal in Bithynia, Sardinia, and other places. It ſeems, however, to be carried to a greater height among the Hindoos, than ever it has been in any nation or among any people, however rude or barbarous; for in a paper of the Aſiatic Reſearches communicated by Warren Haſtings, Eſq. we find that the *trial by ordeal* among them is conducted in *nine* different ways: firſt, by the balance; ſecondly, by fire; thirdly, by water; fourthly, by poiſon; fifthly, by the Coſha, or water in which an idol has been waſhed; ſixthly, by rice; ſeventhly, by boiling oil; eighthly, by red-hot iron; ninthly, by images.

I. Ordeal by the balance is thus performed. The beam having been previouſly adjuſted, the cord fixed, and both ſcales made perfectly even, the perſon accuſed and a Pandit faſt a whole day; then, after the accuſed has been bathed in ſacred water, the *homa*, or oblation, preſented to fire, and the deities worſhipped, he is carefully weighed; and when he is taken out of the ſcale, the Pandits proſtrate themſelves before it, pronounce a certain *mentra* or incantation, agreeably to the Saſtras, and, having written the ſubſtance of the accuſation on a piece of paper, bind it on his head. Six minutes after, they place him again in the ſcale; and, if he weigh more than before, he is held guilty; if leſs, innocent; if exactly the ſame, he muſt be weighed a third time; when, as it is written in the *Mitacſhera*, there will certainly be a difference in his weight. Should the balance, though well fixed, break down, this would be conſidered as a proof of his guilt.

II. For the fire-ordeal, an excavation, nine hands long, two ſpans broad, and one ſpan deep, is made in the ground, and filled with a fire of pippal wood: into this the perſon accuſed muſt walk bare-footed; and, if his foot be unhurt, they hold him blameleſs; if burned, guilty (A).

(A) In Europe fire-ordeal was performed either by taking up in the hand, unhurt, a piece of red-hot iron, of one, two, or three pounds weight; or elſe by walking, barefoot, and blindfold, over nine red-hot plough-ſhares, laid lengthwiſe at unequal diſtances; and if the party eſcaped being hurt, he was adjudged innocent; but if it happened otherwiſe, as without colluſion it uſually did, he was then condemned as guilty. However, by this latter method Queen Emma, the mother of Edward the Confeſſor, is mentioned to have cleared her character, when ſuſpected of familiarity with Alwyn biſhop of Wincheſter. The firſt account we have of Chriſtians appealing to the fire-ordeal, as a proof of their innocence, is that of Simplicius, biſhop of Autun, who lived in the fourth century. This prelate, as the ſtory is related, before his promotion to the epiſcopal order, had married a wife, who loved him tenderly, and who, unwilling to quit him after his advancement, continued to ſleep in the ſame chamber with him. The ſanctity of Simplicius ſuffered, at leaſt in the voice of fame, by the conſtancy of his wife's affection; and it was rumoured about, that the holy man, though a biſhop, perſiſted, in oppoſition to the eccleſiaſtical canons, to taſte the ſweets of matrimony: upon which his wife, in the preſence of a great concourſe of people, took up a conſiderable quantity of burning coals, which ſhe held in her clothes, and applied to her breaſts, without the leaſt hurt to her perſon or her garments as the legend ſays; and her example being followed by her huſband with the like

Ordeal. III. Water-ordeal is performed by cauſing the perſon accuſed to ſtand in a ſufficient depth of water, either flowing or ſtagnant, to reach his navel; but care ſhould be taken that no ravenous animal be in it, and that it be not moved by much air; a brahman is then directed to go into the water, holding a ſtaff in his hand; and a ſoldier ſhoots three arrows on dry ground from a bow of cane; a man is next deſpatched to bring the arrow which has been ſhot fartheſt; and, after he has taken it up, another is ordered to run from the edge of the water; at which inſtant the perſon accuſed is told to graſp the foot or the ſtaff of the brahman, who ſtands near him in the water, and immediately to dive into it. He muſt remain under water, till the two men who went to fetch the arrows are returned; for, if he raiſe his head or body above the ſurface, before the arrows are brought back, his guilt is conſidered as fully proved. In the villages near Benares, it is the practice for the perſon who is to be tried by this kind of ordeal, to ſtand in water up to his navel, and then, holding the foot of a brahman, to dive under it as long as a man can walk 50 paces very gently; if, before the man has walked thus far, the accuſed riſe above the water, he is condemned; if not, acquitted (B).

IV. There are two ſorts of trial by poiſon; firſt, the pandits having performed their homa, and the perſon accuſed his ablution, two *rettis* and a half, or ſeven barley-corns of *viſhanaga*, a poiſonous root, or of *ſauc'hya*, that is, white arſenic, are mixed in eight *maſhas*, or 64 *rettis*, of clarified butter, which the accuſed muſt eat from the hand of a brahman: if the poiſon produce no viſible effect, he is abſolved; otherwiſe condemned. Secondly, the hooded ſnake, called *naga*, is thrown into a deep earthen pot, into which is dropped a ring, a ſeal, or a coin; this the perſon accuſed is ordered to take out with his hand; and, if the ſerpent bite him, he is pronounced guilty; if not, innocent. Ordeal.

V. Trial by the coſha is as follows: the accuſed is made to drink three daughts of the water, in which the images of the ſun, of Devi, and other deities, have been waſhed for that purpoſe; and if, within 14 days, he has any ſickneſs or indiſpoſition, his crime is conſidered as proved.

VI. When ſeveral perſons are ſuſpected of theft, ſome dry rice is weighed with the ſacred ſtone called *ſalgram*, or certain *ſlocas* are read over it; after which the ſuſpected perſons are ſeverally ordered to chew a quantity of it: as ſoon as they have chewed it, they are to throw it on ſome leaves of *pippal*, or, if none be at hand, on ſome *b'hurja patra*, or bark of a tree, from Nepal or Caſhmir. The man, from whoſe mouth the rice comes dry or ſtained with blood, is holden guilty; the reſt is acquitted.

VII. The ordeal by *hot oil* is very ſimple: when it is heated ſufficiently, the accuſed thruſts his hand into it; and, if he be not burned, is held innocent (C).

VIII.

like ſucceſs, the ſilly multitude admired the miracle, and proclaimed the innocence of the loving pair. A ſimilar trick was played by St Brice, in the fifth century. *Moſh. Eccl. Hiſt.* vol. ii.

(B) A very peculiar ſpecies of water-ordeal is ſaid to prevail among the Indians on the coaſt of Malabar. A perſon accuſed of an enormous crime is obliged to ſwim over a large river abounding with crocodiles; and if he eſcapes unhurt, he is eſteemed innocent.

At Siam, beſides the uſual methods of fire and water ordeal, both parties are ſometimes expoſed to the fury of a tiger let looſe for that purpoſe; and if the beaſt ſpares either, that perſon is accounted innocent; if neither, both are held to be guilty; but if he ſpares both, the trial is incomplete, and they proceed to a more certain criterion.

In Europe water-ordeal was performed, either by plunging the bare arm up to the elbow in boiling-water, and eſcaping unhurt thereby, or by caſting the perſon ſuſpected into a river or pond of cold water; and if he floated therein without any action of ſwimming, it was deemed an evidence of his guilt; but if he ſunk, he was acquitted. It is eaſy to trace out the traditional relics of this water-ordeal, in the ignorant barbarity ſtill practiſed in many countries to diſcover witches, by caſting them into a pool of water, and drowning them to prove their innocence. And in the eaſtern empire the fire-ordeal was uſed for the ſame purpoſe by the emperor Theodore Laſcaris; who, attributing his ſickneſs to magic, cauſed all thoſe whom he ſuſpected to handle the hot iron: thus joining (as has been well remarked) to the moſt dubious crime in the world, the moſt dubious proof of innocence.

(C) This ſpecies of trial by ordeal is thus performed: The ground appointed for the trial is cleared and rubbed with cow-dung, and the next day at ſunriſe the *Pandit* worſhips Ganeſa or the Hindoo Janus, preſents his oblations, and pays adoration to other deities, conformably to the *Sáſtra*: then having read the incantation preſcribed, he places a round pan of gold, ſilver, copper, iron, or clay, with a diameter of ſixteen fingers, and four fingers deep; and throws into it one *ſér*, or eighty *ſicca* weight, of clarified butter or oil of *ſeſamum*. After this a ring of gold, or ſilver, or iron, is cleaned and waſhed with water, and caſt into the oil; which they proceed to heat, and when it is very hot put into it a freſh leaf of *pippala*, or of *bilwa*: when the leaf is burned, the oil is known to be ſufficiently hot. Then, having pronounced a *mentra* over the oil, they order the party accuſed to take the ring out of the pan; and if he take it out without being burned, or without a bliſter on his hand, his innocence is conſidered as proved; if not, his guilt. It is reported that this cuſtom, with ſome ſlight variations, ſtill prevails among the Indians on the coaſt of Malabar. The proceſs there is ſaid to begin after the accuſed perſon has been thoroughly waſhed in the preſence of the prince of the country, the prieſts, &c.:—the pot is filled with boiling lead; and the accuſed muſt take the ring out three times ſucceſſively. On the Malabar coaſt, this ordeal ſeems only to be uſed when the perſon is accuſed of a capital crime; for after the proceſs the arm is bound with cloth and ſealed; and after ſeveral days, being brought out publicly, and the arm inſpected, if it is found burnt he is inſtantly put to death; if not, his accuſer undergoes the ſame trial, and being burnt, forfeits his life.

Ordeal. VIII. In the same manner they make an *iron ball*, or the *head of a lance*, red hot, and place it in the hands of the person accused; who, if it burn him not, is judged guiltless.

IX. To perform the ordeal by *dharmách*, which is the name of the *slóca* appropriated to this mode of trial, either an image, named *Dharma*, or the genius of justice, is made of silver, and another, called *Adharma*, of clay or iron, both of which are thrown into a large earthen jar; and the accused having thrust his hand into it, is acquitted if he bring out the silver image, but condemned if he draw forth the iron; or, the figure of a deity is painted on white cloth, and another on black; the first of which they name *dharma*, and the second *adharma*: these are severally rolled up in cow-dung, and thrown into a large jar without having ever been shown to the accused; who must put his hand into the jar, and is acquitted or convicted as he draws out the figure on white or on black cloth.

Though we have proceeded thus far, we have not exhausted Mr Hastings's communication. He goes on to show (to greater extent than our limits permit us to follow him) the manner in which each ordeal above mentioned was executed, giving examples, and unfolding other particulars of some importance in developing the nature of these barbarous customs. For these particulars, however, we must refer to the book itself. But as this subject unquestionably occupies an important department in the history of human superstition, we shall give the Indian law of ordeal from the same paper; when we shall introduce some further particulars concerning this extraordinary custom, which are not to be found in the above account, but which deserve to be noticed.

"1. The balance, fire, water, poison, the idol—these are the ordeals used here below for the proof of innocence, when the accusations are heavy, and when the accuser offers to hazard a mulct, (if he should fail):

2. Or one party may be tried, if he please, by ordeal, and the other must then risk an amercement; but the trial may take place even without any wager, if the crime committed be injurious to the prince.

3. The sovereign having summoned the accused while his clothes are yet moist from bathing, at sunrise, before he has broken his fast, shall cause all trials by ordeal to be conducted in the presence of *Brahmans*.

4. The balance is for women, children, old men, the blind, the lame, *Bráhmans*, and the sick; for the *Súdra*, fire or water, or seven barley-corns of poison.

5. Unless the loss of the accuser amount to a thousand pieces of silver, the accused must not be tried by the red-hot ball, nor by poison, nor by the scales; but if the offence be against the king, or if the crime be heinous, he must acquit himself by one of those trials in all cases.

6. He who has recourse to the balance must be attended by persons experienced in weighing, and go down into one scale, with an equal weight placed on the other, and a groove (with water in it) marked on the beam.

7. 'Thou, O balance, art the mansion of truth; thou wast anciently contrived by deities: declare the truth, therefore, O giver of success, and clear me from all suspicion. Ordeal.

8. 'If I am guilty, O venerable as my own mother, then sink me down, but if innocent raise me aloft.' Thus shall he address the balance.

9. If he sink he is convicted, or if the scales be broken: but if the string be not broken, and he rise aloft, he must be acquitted.

10. On the trial by fire, let both hands of the accused be rubbed with rice in the husk, and well examined: then let seven leaves of the *Aswatt'ha* (the religious fig-tree) be placed on them, and bound with seven threads.

11. 'Thou, O fire, pervadest all beings: O cause of purity, who givest evidence of virtue and of sin, declare the truth in this my hand.'

12. When he has pronounced this, the priest shall place in both his hands an iron ball, red-hot, and weighing fifty *palas* (D).

13. Having taken it, he shall step gradually into seven circles, each with a diameter of sixteen fingers, and separated from the next by the same space.

14. If, having cast away the hot ball, he shall again have his hands rubbed with rice in the husk, and shall show them unburned, he will prove his innocence. Should the iron fall during the trial, or should a doubt arise (on the regularity of the proceedings), he must be tried again.

15. 'Preserve me, O Varuna, by declaring the truth.' Thus having invoked the god of waters, the accused shall plunge his head into the river or pool, and hold both thighs of a man, who shall stand in it up to his navel:

16. A swift runner shall then hasten to fetch an arrow shot at the moment of his plunging; and if, while the runner is gone, the priest shall see the head of the accused under water, he must be discharged as innocent.

17. 'Thou, O poison, art the child of Brahmâ, stedfast in justice and in truth: clear me then from this heavy charge, and if I have spoken truly, become nectar to me.'

18. Saying this, he shall swallow the poison *Sárnga*, from the tree which grows on the mountain *Himálaya*; and if he digests it without any inflammation, the prince shall pronounce him guiltless.

19. Or the priest shall perform rites to the image of some tremendous deity; and, having bathed the idol, shall make the accused to drink three handfuls of the water that has dropped from it.

20. If in fourteen days after he suffers no dreadful calamity from the act of the deity or of the king, he must indubitably be acquitted."

The superstitious weakness of mankind, when left to themselves, is astonishing. There is indeed nothing so absurd but they may be made most firmly to believe, nor so impious but they will do. Nor can a more notorious instance of the truth of this assertion be

(D) A *pala* is four *carshas*, and a *carsha* eighty *ractikàs*, or seeds of the *gungà* creeper, each weighing above a grain and a quarter, or correctly, $1\frac{5}{16}$ gr.

Ordeal.

be poſſibly given than that of the trial by ordeal. The groſs abſurdity as well as impiety of pronouncing a man guilty unleſs he was cleared by a miracle, and of expecting that all the powers of nature ſhould be ſuſpended by an immediate interpoſition of Providence to ſave the innocent, whenever it was preſumptuouſly required, is ſelf-evident. Yet the origin of it may be traced as well to neceſſity as to ſuperſtition. At the time in which it originated in England, as well as in other countries of Europe, it was no eaſy matter for an innocent perſon, when accuſed of guilt, to get himſelf cleared by the then eſtabliſhed mode of trial (See TRIAL.) It was therefore natural for ſuperſtition to fly to Heaven for thoſe teſtimonies of innocence which the abſurdity of human laws often prevented men from obtaining in the ordinary way; and in this way doubtleſs did the trial by ordeal commence: and thus begun by neceſſitous ſuperſtition, it was foſtered by impious prieſtcraft and unjuſt power. There was during all the proceſſes great room for colluſion and deceit; and there can be no queſtion but it was often practiſed: it could not therefore on any account, or in any caſe, be a ſign of innocence or of guilt.

Beſides thoſe particular methods of trial which we have already mentioned, there were ſome few more common in European countries; as the judicial combat —the ordeal of the croſs—the ordeal of the corſned.

The judicial combat was well ſuited to the genius and ſpirit of fierce and warlike nations, and was, as we may reaſonably expect, one of the moſt ancient and univerſal modes of trial. We know that it was exceedingly common in Germany in very remote ages. It was alſo uſed in ſome countries on the continent at pretty early periods: it is not, however, mentioned in any of the Anglo-Saxon laws; and it does not appear to have been much uſed in England till after the Conqueſt. There are, however, two remarkable inſtances of it upon record, which we ſhall give in the words of Dr Henry: "Henry de Eſſex, hereditary ſtandard-bearer of England, fled from a battle in Wales, A. D. 1158, threw from him the royal ſtandard, and cried out, with others, that the king was ſlain. Some time after, he was accuſed of having done this with a treaſonable intention, by Robert de Montfort, another great baron, who offered to prove the truth of his accuſation by combat. Henry de Eſſex denied the charge, and accepted the challenge. When all preliminaries were adjuſted, this combat was accordingly fought, in the preſence of Henry II. and all his court. Eſſex was defeated, and expected to be carried out to immediate execution. But the king, who was no friend to this kind of trial, ſpared his life, and contented himſelf with confiſcating his eſtate, and making him a monk in the abbey of Reading.

"The priory of Tinmouth, in Northumberland, was a cell of the abbey of St Alban's. One Simon of Tinmouth claimed a right to two corrodies, or the maintenance of two perſons in the priory, which the prior and monks denied. This cauſe was brought before the abbot of St Alban's and his court-baron, who appointed it to be tried by combat on a certain day, before him and his barons. Ralf Gubion, prior of Tinmouth, appeared at the time and place appointed, attended by his champion, one William Pegun, a man of gigantic ſtature. The combat was fought, Pegun was defeated, and the prior loſt his cauſe; at which he was ſo much chagrined, that he immediately reſigned his office. This judicial combat is the more remarkable, that it was fought in the court of a ſpiritual baron, and that one of the parties was a prieſt." Ordeal.

We need ſcarcely add, that this deteſtable form of trial was the foundation of the no leſs deteſtable crime of duelling, which ſo much diſgraces our age and nation; which is defended only by ignorance, falſe honour, and injuſtice; which is a relick of barbarous ſuperſtition; and which was abſolutely unknown to thoſe brave and generous nations, the Greeks and Romans, which it is ſo much the faſhion to admire, and who in this particular ſo well merit our imitation. See DUEL.

It was ſo much the cuſtom in the middle ages of Chriſtianity, to reſpect the croſs even to ſuperſtition, that it would have been indeed wonderful if the ſame ignorant bigotry had not converted it into an ordeal: accordingly we find it uſed for this purpoſe, in ſo many different ways as almoſt to preclude deſcription. We ſhall, however, tranſcribe, for the ſatisfaction of our readers, Dr Henry's account of it, and of the corſned: "In criminal trials, the judgement of the croſs was commonly thus conducted. When the priſoner had declared his innocence upon oath, and appealed to the judgement of the croſs, two ſticks were prepared exactly like one another: the figure of the croſs was cut on one of theſe ſticks, and nothing on the other: each of them was then wrapped up in a quantity of fine white wool, and laid on the altar, or on the relicks of the ſaints; after which a ſolemn prayer was put up to God, that he would be pleaſed to diſcover, by evident ſigns, whether the priſoner was innocent or guilty. Theſe ſolemnities being finiſhed, a prieſt approached the altar, and took up one of the ſticks, which was uncovered with much anxiety. If it was the ſtick marked with the croſs, the priſoner was pronounced innocent: if it was the other, he was declared guilty. When the judgement of the croſs was appealed to in civil cauſes, the trial was conducted in this manner: The judges, parties, and all concerned, being aſſembled in a church, each of the parties choſe a prieſt, the youngeſt and ſtouteſt that he could find, to be his repreſentative in the trial. Theſe repreſentatives were then placed one on each ſide of ſome famous crucifix; and at a ſignal given, they both at once ſtretched their arms at full length, ſo as to form a croſs with their body. In this painful poſture they continued to ſtand while divine ſervice was performing; and the party whoſe repreſentative dropped his arms firſt loſt his cauſe.

"The corſned, or the conſecrated bread and cheeſe, was the ordeal to which the clergy commonly appealed when they were accuſed of any crimes; in which they acted a very prudent part, as it was attended with no danger or inconveniency. This ordeal was performed in this manner: A piece of barley bread, and a piece of cheeſe, were laid upon the altar, over which a prieſt pronounced certain conjurations, and prayed with great fervency, that if the perſon accuſed was guilty, God would ſend his angel Gabriel to ſtop his throat, that he might not be able to ſwallow that bread and cheeſe. Theſe prayers being ended, the culprit approached the altar,

Ordeal. altar, took up the bread and cheeſe, and began to eat it. If he ſwallowed freely, he was declared innocent; but if it ſtuck in his throat, and he could not ſwallow (which we may preſume ſeldom or never happened), he was pronounced guilty."

There were beſides theſe a variety of other ordeals practiſed in Chriſtian countries, many of which retain the ſame names as among Pagans, and differ only in the mode of execution. In all nations of Chriſtians where thoſe trials were uſed, we find the clergy engaged in them. Indeed, in England, ſo late as King John's time, we find grants to the biſhops and clergy to uſe the *judicium ferri, aquæ, et ignis*. And, both in England and Sweden, the clergy preſided at this trial, and it was only performed in the churches or in other conſecrated ground: for which Stiernhook gives the reaſon, *Non defuit illis operæ et laboris pretium; ſemper enim ab ejuſmodi judicio aliquid lucri ſacerdotibus obveniebat*. But, to give it its due praiſe, we find the canon law very early declaring againſt trial by ordeal, or *vulgaris purgatio*, as being the fabric of the devil, *cum ſit contra præceptum Domini, Non tentabis Dominum Deum tuum*. Upon this authority, though the canons themſelves were of no validity in England, it was thought proper (as had been done in Denmark above a century before) to diſuſe and aboliſh this trial entirely in our courts of juſtice, by an act of Parliament in 3 Hen. III. according to Sir Edward Coke, or rather by an order of the king in council.

It may ſtill perhaps be a *poſtulatum* with ſome of our readers how the effects of theſe trials were evaded, and how it was poſſible to appear to do, what we know could not be really done, without material injury to the perſons concerned: on this ſubject the learned hiſtorian whom we have already quoted, obſerves with regard to the ordeals in ancient Britain, which, *mutatis mutandis*, will anſwer for others, that, "If we ſuppoſe few or none eſcaped conviction who expoſed themſelves to thoſe fiery trials, we ſhall be very much miſtaken. For the hiſtories of thoſe times contain innumerable examples of perſons plunging their naked arms into boiling water, handling red-hot balls of iron, and walking upon burning ploughſhares, without receiving the leaſt injury. Many learned men have been much puzzled to account for this, and diſpoſed to think that Providence graciouſly interpoſed, in a miraculous manner, for the preſervation of injured innocence. But if we examine every circumſtance of thoſe fiery ordeals with due attention, we ſhall ſee ſufficient reaſon to ſuſpect that the whole was a groſs impoſition on the credulity of mankind. The accuſed perſon was committed wholly to the prieſt, who was to perform the ceremony three days before the trial, in which he had time enough to bargain with him for his deliverance, and give him inſtructions how to act his part. On the day of trial, no perſon was permitted to enter the church but the prieſt and the accuſed till after the iron was heated, when twelve friends of the accuſer, and twelve of the accuſed, and no more, were admitted, and ranged along the wall on each ſide of the church, at a reſpectful diſtance. After the iron was taken out of the fire, ſeveral prayers were ſaid; the accuſed drank a cup of holy water, and ſprinkled his hand with it, which might take a conſiderable time if the prieſt was indulgent. The ſpace of nine feet was meaſured by the accuſed himſelf with his own feet, and he would probably give but ſcanty meaſure. He was obliged only to touch one of the marks with the toe of his right foot, and allowed to ſtretch the other foot as far towards the other mark as he could, ſo that the conveyance was almoſt inſtantaneous. His hand was not immediately examined, but wrapped in a cloth prepared for that purpoſe three days. May we not then, from all theſe precautions, ſuſpect that theſe prieſts were in poſſeſſion of ſome ſecret that ſecured the hand from the impreſſions of ſuch a momentary touch of hot iron, or removed all appearance of theſe impreſſions in three days; and that they made uſe of this ſecret when they ſaw reaſon? Such readers as are curious in matters of this kind may find two different directions for making ointments that will have this effect, in the work here quoted *. What greatly ſtrengthens theſe ſuſpicions is, that we meet with no example of any champion of the church who ſuffered the leaſt injury from the touch of hot iron in this ordeal: but when any one was ſo fool-hardy as to appeal to it, or to that of hot water, with a view to deprive the church of any of her poſſeſſions, he never failed to burn his fingers, and loſe his cauſe."

Ordeal.

* *Du Cange, Gloſſ.* tom. iii. p. 397.

To this we ſhall add what the learned Beckmann has ſaid concerning the impoſition that was probably practiſed in the ordeal by fire. "I am not acquainted with every thing that concerns the trial by ordeal, when perſons accuſed were obliged to prove their innocence by holding in their hands red-hot iron; but I am almoſt convinced that this alſo was a juggling trick of the popes, which they employed as might beſt ſuit their views. It is well known that this mode of exculpation was allowed only to weak perſons, who were unfit to wield arms, and particularly to monks and eccleſiaſtics, to whom, for the ſake of their ſecurity, that by ſingle combat was forbidden. The trial itſelf took place in the church, entirely under the inſpection of the clergy; maſs was celebrated at the ſame time; the defendant and the iron were conſecrated by being ſprinkled with holy water; the clergy made the iron hot themſelves; and they uſed all theſe preparatives, as jugglers do many motions, only to divert the attention of the ſpectators. It was neceſſary that the accuſed perſon ſhould remain at leaſt three days and three nights under their immediate care, and continue as long after. They covered his hands both before and after the proof; ſealed and unſealed the covering: The former, as they pretended, to prevent the hands from being prepared any how by art; the latter, to ſee if they were burnt.

Some artificial preparation was therefore known, elſe no precautions would have been neceſſary. It is highly probable, that during the three firſt days the preventive was applied to thoſe perſons whom they wiſhed to appear innocent; and that the three days after the trial were requiſite to let the hands reſume their natural ſtate. The ſacred ſealing ſecured them from the examination of preſumptuous unbelievers; for to determine whether the hands were burnt, the three laſt days were certainly not wanted. When the ordeal was aboliſhed, and this art rendered uſeleſs, the clergy no longer kept it a ſecret. In the 13th century, an account of it was publiſhed by Albertus Magnus, a Dominican monk

Order. monk (A). If his receipt be genuine, it ſeems to have conſiſted rather in covering the hands with a kind of paſte than in hardening them. The ſap of the *althæa* (marſh-mallow), the ſlimy ſeeds of the flea-bane, which is ſtill uſed for ſtiffening by the hat-makers and ſilk-weavers, together with the white of an egg, were employed to make the paſte adhere. And by theſe means the hands were as ſafe as if they had been ſecured by gloves.

"The uſe of this juggling trick is very old, and may be traced back to a Pagan origin. In the Antigone of Sophocles, the guards placed over the body of Polynices, which had been buried contrary to the orders of Creon, offered, in order to prove their innocence, to ſubmit to any trial. We will, ſaid they, take up red-hot iron in our hands, or walk through fire *."

* Vol. iii. 297.

ORDER, in *Architecture*, is a ſyſtem of the ſeveral members, ornaments, and proportions of columns and pilaſters; or a regular arrangement of the projecting parts of a building, eſpecially the column, ſo as to form one beautiful whole. See ARCHITECTURE.

ORDER is alſo uſed for a diviſion or claſs of any thing: thus the tribe of animals called *birds* is ſubdivided into ſix orders. See ORNITHOLOGY.

ORDER, in *Rhetoric*, is the placing of each word and member of a ſentence in ſuch a manner, as will moſt contribute to the force, beauty, or evidence of the whole; according to the genius and cuſtom of different languages. With regard to order, we may obſerve in general, that, in Engliſh, the nearer we keep to the natural or grammatical order, it is generally the beſt; but in Latin, we are to follow the uſe of the beſt writers; a joint regard being always had to the judgement of the ear, and the perſpicuity of the ſenſe, in both languages.

ORDER is alſo uſed for a claſs or diviſion of the members of the body of a ſtate; with regard to aſſemblies, precedency, &c.

In this ſenſe, order is a kind of dignity, which, under the ſame name, is common to ſeveral perſons; and which, of itſelf, does not give them any particular public authority, but only rank, and a capacity of arriving at honours and employments.

To abridge this definition, order may be ſaid to be a dignity attended with an aptitude for public employ. By which it is diſtinguiſhed from an office, which is the exerciſe of a public truſt.

In this ſenſe, nobility is an order, &c. The clericate is alſo an order, &c.

ORDER is alſo the title of certain ancient books, containing the divine office, with the order and manner of its performance.

Roman order is that wherein are laid down the ceremonies which obtain in the Romiſh church. See RITUAL.

ORDER, in *Botany*, is a name given to a ſubdiviſion of plants in the Linnæan ſyſtem. See BOTANY.

ORDERS, by way of eminency, or *Holy ORDERS*, denote a character peculiar to eccleſiaſtics, whereby they are ſet apart for the miniſtry. See ORDINATION. Order.

This the Romaniſts make their ſixth ſacrament.

In no reformed church are there more than three orders; viz. biſhops, prieſts, and deacons. In the Romiſh church there are ſeven, excluſive of the epiſcopate, all which the council of Trent enjoins to be received, and believed, on pain of anathema.

They are diſtinguiſhed into petty, or ſecular orders; and major, or ſacred orders.

ORDERS, the petty, or minor, are four; viz. thoſe of doorkeeper, exorciſt, reader, and acolyth.

Thoſe in petty orders may marry without any diſpenſation: in effect, the petty orders are looked on as little other than formalities, and as degrees neceſſary to arrive at the higher orders. Yet the council of Trent is very ſerious about them; enjoins that none be admitted into them without underſtanding Latin; and recommends it to the biſhops, to obſerve the intervals of conferring them, that the perſons may have a ſufficient time to exerciſe the function of each order; but it leaves the biſhops a power of diſpenſing with thoſe rules; ſo that the four orders are uſually conferred the ſame day, and only make the firſt part of the ceremony of ordination.

The Greeks diſavow theſe petty orders, and paſs immediately to the ſubdeaconate; and the reformed to the deaconate.

Their firſt riſe Fleury dates in the time of the emperor Juſtinian. There is no call nor benefice required for the four petty orders; and even a baſtard may enjoy them without any diſpenſation; nor does a ſecond marriage diſqualify.

ORDERS, ſacred, or major, we have already obſerved, are three: viz. thoſe of deacon, prieſt, and biſhop.

The council of Trent retrieving the ancient diſcipline, forbids any perſon being admitted to the major orders, unleſs he be in peaceable poſſeſſion of a benefice ſufficient for a decent ſubſiſtence; allowing no ordinations on patrimonies or penſions, except where the biſhop judges it for the ſervice of the church.

A perſon is ſaid to be promoted to orders *per ſaltum*, when he has not before paſſed the inferior orders. The council of Conſtantinople forbids any biſhop being ordained without paſſing all the degrees; yet church-hiſtory furniſhes us with inſtances of biſhops conſecrated, without having paſſed the order of prieſthood; and Panormus ſtill thinks ſuch an ordination valid.

Military ORDERS, are companies of knights, inſtituted by kings and princes, either for defence of the faith, or to confer marks of honour, and make diſtinctions among their ſubjects.

Religious ORDERS, are congregations or ſocieties of monaſtics, living under the ſame ſuperior, in the ſame manner, and wearing the ſame habit. Religious orders

(A) In his work *De Mirabilibus Mundi*, at the end of his book *De Secretis Mulierum*, Amſtelod. 1702, 12mo, p. 100. Experimentum mirabile quod facit hominem ire in ignem ſine læſione, vel portare ignem vel ferrum ignitum ſine læſione in manu. Recipe ſuccum biſmalvæ, et albumen ovi, et ſemen pſylli et calcem, et pulveriza, et confice cum illo albumine ovi ſuccum raphani; commiſce; ex hac confectione illineas corpus tuum vel manum, et dimitte ſiccari, et poſtea iterum illineas, et poſt hoc poteris audacter ſuſtinere ignem ſine nocumento.

Order ‖ Ordinance.

ders may be reduced to five kinds; viz. monks, canons, knights, mendicants, and regular clerks. See MONK, CANON, &c.

Father Mabillon proves, that till the ninth century, almoſt all the monaſteries in Europe followed the rule of St Benedict; and that the diſtinction of orders did not commence till upon the reunion of ſeveral monaſteries into one congregation: that St Odo, abbot of Cluny, firſt began this reunion, bringing ſeveral houſes under the dependence of Cluny: that, a little afterwards, in the 11th century, the Camaldulians aroſe; then, by degrees, the congregation of Vallombroſa; the Ciſtercians, Carthuſians, Auguſtines; and at laſt, in the 13th century, the Mendicants. He adds, that Lupus Servatus, abbot of Ferrieres, in the ninth century, is the firſt that ſeems to diſtinguiſh the order of St Benedict from the reſt, and to ſpeak of it as a particular order.

White ORDER denotes the order of regular canons of St Auguſtine. See AUGUSTINES.

Black ORDER denoted the order of BENEDICTINES.

Theſe names were firſt given theſe two orders from the colour of their habit; but are diſuſed ſince the inſtitution of ſeveral other orders, who wear the ſame colours.

Gray ORDER was the ancient name of the CISTERCIANS; but ſince the change of the habit, the name ſuits them no more.

ORDERS, religious military, are thoſe inſtituted in defence of the faith, and privileged to ſay maſs; and who are prohibited marriage, &c.

Of this kind are the knights of Malta, or of St John of Jeruſalem. Such alſo were the knights Templars, the knights of Calatrava, knights of St Lazarus, Teutonic knights, &c. See MALTA, TEMPLAR, &c.

Father Putignani accounts thoſe military orders where marriage is not allowed, real religious orders. Papebroch ſays, it is in vain to ſearch for military orders before the 12th century.

ORDERS, in a military ſenſe, all that is lawfully commanded by ſuperior officers. Orders are given out every day, whether in camp, garriſon, or on a march, by the commanding officer; which orders are afterwards given to every officer in writing by their reſpective ſerjeants.

ORDINAL, a book containing the order or manner of performing divine ſervice. See RITUAL.

ORDINAL Numbers, thoſe which expreſs order, as 1ſt, 2d, 3d, &c.

ORDINANCE or ORDONNANCE, a law, ſtatute, or command of a ſovereign or ſuperior; thus the acts of parliament are ſometimes termed *ordinances of parliament*, as in the parliament-rolls. Though in ſome caſes we find a difference made between the two; ordinances being only temporary things, by way of prohibition; and capable of being altered by the commons alone: whereas an act is a perpetual law, and cannot be altered but by king, lords, and commons.

Coke aſſerts, that an ordinance of parliament diſfers from an act, as the latter can only be made by the king, and the threefold conſent of the eſtates; whereas the former may be made by one or two of them.

ORDINANCE of the Foreſt, is a ſtatute made in the 34th year of Henry I. relating to foreſt-matters.

In the French juriſprudence, ordinances are ſuch laws as are eſtabliſhed by the king's authority alone. All ordonnances begin with, *à tous preſens, et à venir ſalut.* Ordinary ‖ Ordination.

ORDINARY, in general, ſignifies common, uſual; thus, an ambaſſador, or envoy in ordinary, is one ſent to reſide ſtatedly, and for a number of years, in the court of ſome foreign prince or ſtate, in order to keep up a good underſtanding, and watch over the intereſt of his own nation.—This term is alſo applied to ſeveral officers in the king's houſhold, who attend on common occaſions. Thus we ſay, phyſician in ordinary, &c.

ORDINARY, in naval language, denotes the eſtabliſhment of the perſons employed by government to take charge of the ſhips of war, which are laid up in the ſeveral harbours adjacent to the royal dock-yards. Theſe are principally compoſed of the warrant-officers of the ſaid ſhips, as the gunner, boatſwain, carpenter, deputy-purſer, and cook, and three ſervants. There is beſides a crew of labourers inrolled in the liſt of the ordinary, who paſs from ſhip to ſhip occaſionally, to pump, moor, remove, or clean them, whenever it is neceſſary.

The term *ordinary* is alſo applied ſometimes to the ſhips themſelves; it is likewiſe uſed to diſtinguiſh the inferior ſailors from the moſt expert and diligent. The latter, are rated *able* on the navy books, and have higher pay than thoſe who are rated *ordinary*.

ORDINARY, in common or canon law, means one who has ordinary or immediate juriſdiction in matters eccleſiaſtical, in any place. In this ſenſe archdeacons are ordinaries, but the appellation is moſt frequently applied to the biſhop of the dioceſe, who has of courſe the ordinary eccleſiaſtical juriſdiction, and the collation to benefices within ſuch dioceſe. There are ſome chapels, chapters, abbeys, &c. exempted from the juriſdiction of the ordinary. The archbiſhop is ordinary of the whole province, to viſit, and receive appeals from the inferior judicatures. The Romiſh writers on canon law call the pope by way of eminence *ordinary of ordinaries*, ſince by the Lateran council he has uſurped the right of collating, by probation, to all benefices; in excluſion of the common collators.

ORDINARY of Aſſizes and Seſſions, was a deputy of the biſhop of the dioceſe, anciently appointed to give malefactors their neck-verſes, and judge whether they read or not: alſo to perform divine ſervice for them, and aſſiſt in preparing them for death. So the

ORDINARY of Newgate, is one who is attendant in ordinary upon the condemned malefactors in that priſon to prepare them for death; and he records the behaviour of ſuch perſons.

ORDINARY, or *Honourable* ORDINARY, in *Heraldry*, a denomination given to certain charges properly belonging to that art. See HERALDRY, Chap. III. ſect. i.

ORDINATES, in *Geometry* and *Conics*, are lines drawn from any point of the circumference of an ellipſis, or other conic ſection, perpendicularly acroſs the axis, to the other ſide. See *CONIC-Sections*.

ORDINATION, the act of conferring holy orders, or of initiating a perſon into the prieſthood by prayer and the laying on of hands.

Ordination has always been eſteemed a principal prerogative of biſhops, and they ſtill retain the function

Ordination, Ordnance.

as a mark of ſpiritual ſovereignty in their dioceſe. Without ordination, no perſon can receive any benefice, parſonage, vicarage, &c. A perſon muſt be 23 years of age, or near it, before he can be ordained deacon, or have any ſhare in the miniſtry; and full 24 before he can be ordained prieſt, and by that means be permitted to adminiſter the holy communion. A biſhop, on the ordination of clergymen, is to examine them in the preſence of the miniſters, who, in the ordination of prieſts, but not of deacons, aſſiſt him at the impoſition of hands; but this is only done as a mark of aſſent, not becauſe it is thought neceſſary. In caſe any crime, as drunkenneſs, perjury, forgery, &c. be alleged againſt any one that is to be ordained, either prieſt or deacon, the biſhop ought to deſiſt from ordaining him. The perſon to be ordained is to bring a teſtimonial of his life and doctrine to the biſhop, and to give account of his faith in Latin; and both prieſts and deacons are obliged to ſubſcribe the 39 articles.

The ordination of biſhops is more properly and more commonly called *conſecration*.

In the ancient diſcipline there was no ſuch thing as a vague and abſolute ordination; but every one was to have a church, whereof he was to be ordained clerk, or prieſt. In the twelfth century they grew more remiſs, and ordained without any title or benefice.

The Council of Trent reſtored the ancient diſcipline, and appointed that none ſhould be ordained but thoſe who were provided of a benifice ſufficient to ſubſiſt them. Which practice ſtill obtains in England.

The council of Rome, in 944, orders, that no ordinations ſhall be held except on the firſt, fourth, ſeventh, and ten months. In England, by can. 31. ordination days are the four Sundays immediately following the Ember-weeks; being the ſecond Sunday in Lent, Trinity-Sunday, and the Sundays following the firſt Wedneſday after September the 14th, and December the 13th. Theſe are the ſtated times; but ordinations may take place at any other time, according to the diſcretion of the biſhop or circumſtances of the caſe.

Pope Alexander II. condemns *ordination per ſaltum*, as they call it; i. e. the leaping to a ſuperior order without paſſing through the inferior.

Ordination is one of the ſacraments of the church of Rome.

In the eſtabliſhment of Scotland, where there are no biſhops, the power of ordination is lodged in the preſbytery, and by the Independents in the ſuffrage of the people. See EPISCOPACY, PRESBYTERIANS, and INDEPENDENTS.

ORDNANCE, a general name for all ſorts of great guns uſed in war. See GUNNERY.

Boring of ORDNANCE. Till within theſe 20 years, iron ordnance were caſt with a cylindrical cavity, nearly of the dimenſion of the caliber of the piece, which was afterwards enlarged to the proper caliber by means of ſteel-cutters fixed into the dog-head of a boring-bar-iron. Three ſide cutters equidiſtant were requiſite to preſerve the caliber ſtraight and cylindrical; and a ſingle cutter was uſed at the end of the bar to ſmooth the breech of the piece. In boring ordnance caſt hollow, the piece was fixed upon a carriage that could be moved backwards and forwards in a direct line with the centre of a water-wheel; in this centre was fixed the boring-bar, of a ſufficient length to reach up to the breech of the piece, or more properly to the further end of the caliber. The carriage with the piece being drawn backwards from the centre of the water-wheel to introduce the boring and finiſhing bars and cutters, it is then preſſed forwards upon this bar by means of levers, weights, &c. and the water-wheel being ſet agoing, the bar and fullers are turned round, and clean out and ſmooth the caliber to its proper dimenſions. Ordnance.

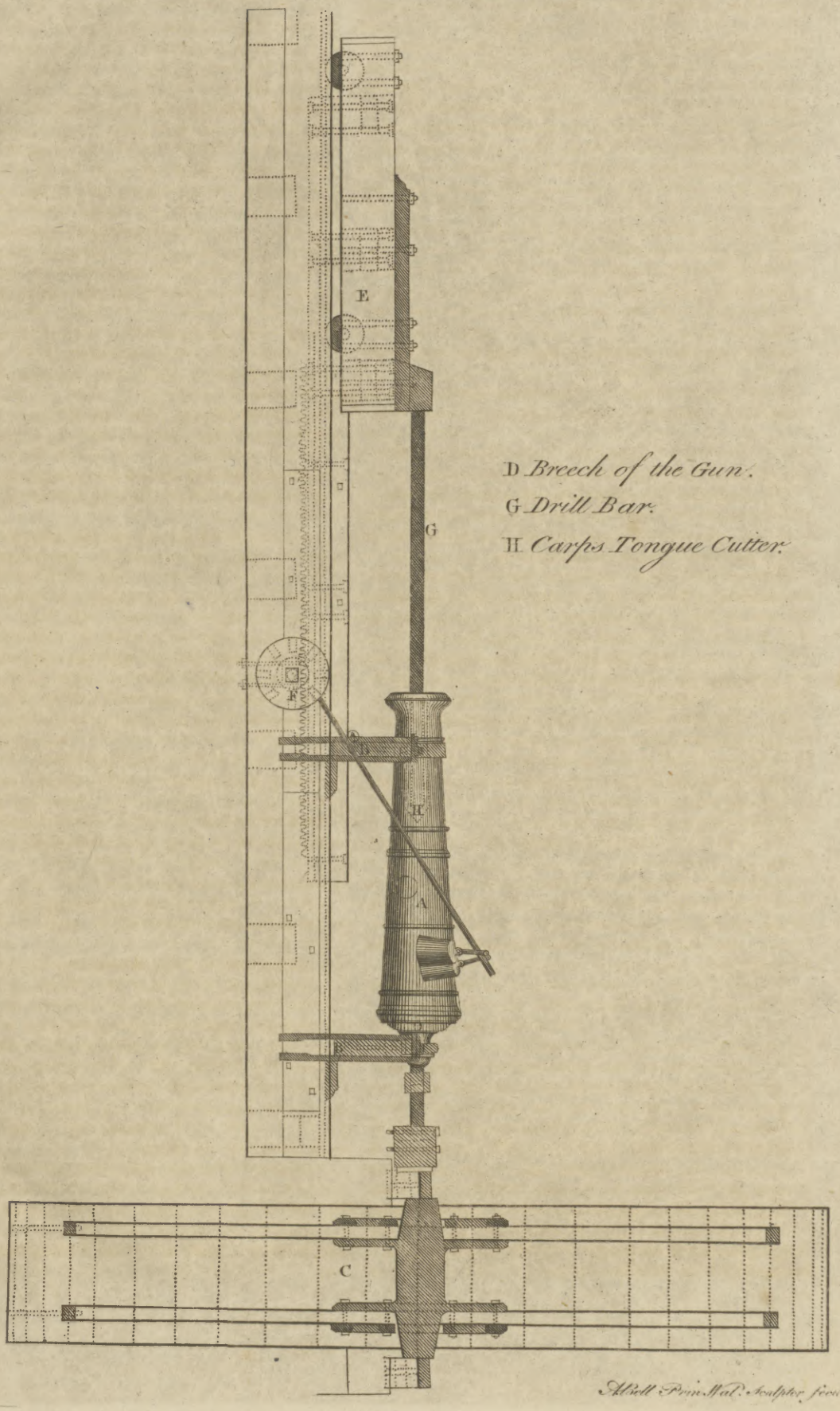
Experience at laſt pointed out many inconveniences ariſing from the method of caſting guns *hollow*, and widening the calibers by theſe boring bars. For the body of iron of the hollow-gun, being, at caſting, in contact with the core that made the caliber within-ſide, and with the mould without-ſide, began to conſolidate towards theſe ſides in the firſt place, ſooner than in the intermediate ſpace, where of courſe the contraction of the iron takes place; by which means, all guns caſt hollow become more or leſs ſpongy where they ought to have been moſt compact; and numberleſs cavities alſo were created round the cores, from ſtagnated air generated in them, which were too deep to be cut out by the boring.

To remedy theſe defects, iron ordnance is now univerſally caſt ſolid, by which means the column of iron is greatly enlarged, and the grain more compreſſed; and the contraction of the iron becomes in the heart of the column, and conſequently is cut out by the perforation for the caliber.

Guns are bored out of the ſolid reverſely from the hollow method. The piece A is placed upon two ſtandards BB, by means of two journeys, turned round by the water-wheel C, the breech D being introduced into the centre of the wheel, with the muzzle towards the ſliding carriage E, which is preſſed forwards by a ratch F, and weights, in the ſame way as the gun-carriage was in hollow-boring. Upon this ſliding carriage is fixed, truly horizontal and centrical to the gun, the drill-bar G, to the end of which is fixed a carp's tongue drill or cutter H; which, being preſſed forward upon the piece whilſt it is turning round, perforates the bore, which is afterwards finiſhed with bores and cutters as the hollow guns were. The principal difficulty of perforating ſolid guns truly centrical, ariſes from the contraction of the iron above-mentioned; which, reſiſting the drill unequally, tends to throw it out of the centrical line. Plate CCCXC.

Office of ORDNANCE, an office kept within the Tower of London, which ſuperintends and diſpoſes of all the arms, inſtruments, and utenſils of war, both by ſea and land, in all the magazines, garriſons, and forts, in Great Britain. We have the following copious account of this eſtabliſhment in Beatſon's *Political Index*. In ancient times, before the invention of guns, this office was ſupplied by officers under the following names: the *bowyer*, the *croſs bowyer*, the *galeator* or *purveyor of helmets*, the *armourer*, and the *keeper of the tents*; and in this ſtate it continued till Henry VIII. placed it under the management of a maſter, a lieutenant, ſurveyor, &c. &c.

Some improvements have been ſince made; and this very important branch is now under the direction of the maſter general of the ordnance, having under him a lieutenant general, a ſurveyor general, a clerk, a ſtorekeeper, a clerk of the deliveries, and a treaſurer, with a very great number of inferior officers, employed in



D *Breech of the Gun.*
G *Drill Bar.*
H *Carps Tongue Cutter.*

Abbott Print Mal. sculptor fecit.

Ordnance. in the Tower of London, at Woolwich, and in almoſt all the forts, garriſons, and principal ports in his Majeſty's dominions. The office of ordnance is divided into two diſtinct branches, the civil and the military; the latter being ſubordinate, and under the authority of the former. For the better underſtanding the buſineſs of the different officers, they ſhall be diſtinctly treated of, beginning with the principal one, viz.

Maſter General of the ORDNANCE is deemed the principal officer in the civil branch of the ordnance; yet he is always choſen from amongſt the firſt generals in his Majeſty's ſervice. His truſt is very great, as in him is veſted the ſole power of ſtoring all the military magazines in the king's dominions with proper munitions of war, and likewiſe to ſupply the royal navy with what they may need in his department, the parliament granting money in the moſt liberal manner for this purpoſe. He is colonel in chief of the royal regiment of artillery, at preſent conſiſting of four battalions; and he is inveſted with a peculiar juriſdiction over all his majeſty's engineers employed in the ſeveral fortifications in his majeſty's dominions: and to him they are all accountable for their proceedings, and from him they receive their particular orders and inſtructions, according to the directions and commands given by his majeſty in council. As maſter general of the ordnance he has the appointment of almoſt all the inferior officers and ſervants. He has a ſecretary, and an under-ſecretary; and beſides there is a ſecretary and a counſel to the board of ordnance.

Lieutenant General of the ORDNANCE receives all orders and warrants ſigned by the maſter general, and from the other principal officers, and ſees them duly executed, iſſues orders as the occaſions of the ſtate require, and gives directions for diſcharging the artillery when required at coronations, birth-days, ſignal victories, and other ſolemn occaſions. It is alſo his peculiar office to ſee the train of artillery, and all its equipage, fitted for motion, when ordered to be drawn into the field, or ſent upon any particular ſervice. He is colonel *en ſecond* of the royal regiment of artillery, and has a ſecretary and ſeveral inferior officers and clerks under him.

Surveyor General of the ORDNANCE inſpects the ſtores and proviſions of war in the cuſtody of the ſtorekeeper, and ſees that they are ranged and placed in ſuch order as is moſt proper for their preſervation. He allows all bills of debt, and keeps a check upon all labourers and artificers work; ſees that the ſtores received be good and ſerviceable, duly proved and marked, as they ought to be, with the king's mark, taking to his aſſiſtance the reſt of the officers and proof-maſters. To aſſiſt him in the buſineſs of his office, he has under him the proof-maſter of England, and clerks, and other inferior officers.

Clerk of the ORDNANCE, an officer whoſe function is to record all orders and inſtructions given for the government of the office; all patents and grants; the names of all officers, clerks, artificers, gunners, labourers, &c. who enjoy thoſe grants, or any other fee for the ſame; to draw all eſtimates for proviſions and ſupplies to be made, and all letters, inſtructions, commiſſions, deputations, and contracts for his majeſty's ſervice; to make all bills of impreſt and debentures, for the payment and ſatisfaction of work done and proviſions received in the ſaid office; and all quarter books for the ſalaries and allowances of all officers, clerks, &c. belonging to the office; and to keep journals and ledgers of the receipts and returns of his majeſty's ſtores, to ſerve as a check between the two accountants of the office, the one for money, and the other for ſtores. Ordnance, Ordovices.

Storekeeper of the ORDNANCE takes into his cuſtody all his majeſty's ordnance, munitions and ſtores belonging thereto, and indents and puts them in legal ſecurity, after they have been ſurveyed by the ſurveyor-general, any part of which he muſt not deliver without a warrant ſigned by the proper officers: nor muſt he receive back any ſtores formerly iſſued till they have been reviewed by the ſurveyor, and regiſtered by the clerk of the ordnance in the book of remains; and he muſt take care that whatever is under his cuſtody be kept ſafe, and in ſuch readineſs as to be fit for ſervice upon the moſt peremptory demand.

Clerk of the Deliveries of the ORDNANCE draws all orders for delivery of any ſtores, and ſees them duly executed; charges by indenture the particular receiver of the ſtores delivered; and, in order to diſcharge the ſtorekeeper, regiſters the copies of all warrants for the deliveries, as well as the proportions delivered.

Treaſurer and Paymaſter of the ORDNANCE receives and pays all moneys, both ſalaries and debentures in and belonging to this office. In his office are ſeveral clerks, ordinary and extraordinary, for the diſpatch of buſineſs.

Office of ORDNANCE. Beſides the principal officers already mentioned, there belong to this office two proof-maſters; a clerk of the works; a purveyor for the land, and a purveyor for the ſea; an architect; an aſtronomical obſerver; and other officers. The other part of this office, which is termed the military branch of the ordnance, is a chief engineer, who has under him two directors, four ſub-directors, with an unlimited number of engineers in ordinary, engineers extraordinary, ſub-engineers, and practitioner engineers.

ORDNANCE Bills, commonly called *ordnance debentures*, are bills iſſued by the board of ordnance on the treaſurer of that office, for the payment of ſtores, &c. Theſe are not payable at any certain time, and do not bear any intereſt, ſo that the diſcount upon them is often very high; but they are ſeldom much above two years in arrears.

ORDONNANCE, in architecture, is the compoſition of a building, and the diſpoſition of its parts, both with regard to the whole and to one another; or, as Mr Evelyn expreſſes it, determining the meaſure of what is aſſigned to the ſeveral apartments. Thus ordonnance is the judicious contrivance of the plan or mould; as when the court, hall, lodgings, &c. are neither too large nor too ſmall, but the court affords convenient light to the apartments about it; the hall is of fit capacity to receive company; and the bed-chamber, &c. of a proper ſize. When theſe diviſions are either too great or too ſmall, with reſpect to the whole, as where there is a large court to a little houſe, or a ſmall hall to a magnificent palace, the fault is in the ordonnance. See ARCHITECTURE.

ORDONNANCE, in painting, is uſed for the diſpoſition of the parts of a picture, either with regard to the whole piece, or to the ſeveral parts, as the groups, maſſes, contraſts, &c. See PAINTING.

ORDOVICES, ancient Britons, of whom we have the following account in Henry's Hiſtory of Great Britain. They lived "in that country which is now called

Ordovices, Ore.

North Wales, and contains the counties of Montgomery, Merioneth, Caernarvon, Denbigh, and Flint. Theſe Ordovices, or (as they are called by Tacitus) Ordeuices, are ſuppoſed to have been originally of the ſame tribe or nation with the Huicii of Warwickſhire, who were under ſome kind of ſubjection to the Cornavii; but the Huicii of North Wales, being a free and independent people, were called Ordh Huici, or the free Huici. When they were invaded by the Romans, they ſhowed a ſpirit worthy of their name, and fought with great bravery in defence of their freedom and independency. Though they received a great defeat from the Roman general Oſtorius, in conjunction with the Silures, they maintained the war for a conſiderable time, until they were finally ſubdued, with great ſlaughter, by the renowned Agricola. It was probably owing to the nature of the country, and to the vicinity of Diva, now Cheſter, where a whole legion was quartered, that the Romans had ſo few towns or ſtations in the territories of the Ordovices. Mediolanum, which is mentioned by Ptolemy, was the capital of the nation, and was probably ſituated at Maywood, in Montgomeryſhire. It was a place of ſome conſideration in the Roman times, but was afterwards quite demoliſhed by Edwin, king of Northumberland. Beſides this, the Romans had a few other towns in this country; as Segontium, now Caernarvon; Conovium, now Conway; and Varæ, now Bodvary, which are all mentioned in the eleventh journey of Antoninus. The country of the Ordovices was comprehended in the Roman province which was called *Britannia Secunda*."

ORE, a mineral body, partly or entirely compoſed of metallic ſubſtances, in the natural ſtate in which it exiſts in the earth. Metallic ſubſtances are found, either native, that is, pure, and uncombined with other ſubſtances, or alloyed with other metals, or combined with oxygen, or ſulphur, or with acids; and thus it appears, that metals exiſt in ores, in four different ſtates. 1. In the metallic ſtate, when they are either pure, or combined with each other, as in the ſtate of alloy. 2. In the ſtate of an oxide. 3. Combined with ſulphur in the ſtate of ſulphuret. And 4. with acids, forming ſalts. For the particular deſcription of ores, ſee MINERALOGY; and for the mode of their diſtribution in the earth, ſee GEOLOGY. Ore.

But ores are rarely found exactly in the ſtate of combination now mentioned. It ſeldom indeed happens, that they are not mixed with various earthy minerals. As all metals are extracted from ores, it is of great importance to be acquainted in the firſt place, with the materials of which they are compoſed, as they are obtained from the earth, with the view of aſcertaining the nature and proportions of the various ingredients which enter into the compoſition; and in the ſecond place, to know the ſimpleſt and eaſieſt proceſſes by which the metals may be ſeparated, for the purpoſes of economy and manufactures. Hence, in the treatment of ores, two objects are in view. The firſt is their analyſis, which is the province of the chemical philoſopher; and the ſecond is their reduction in the large way, which is the buſineſs of the metallurgiſt. The moſt improved methods for accompliſhing each of theſe objects, will be detailed in the following treatiſe.

ORES, REDUCTION AND ANALYSIS OF.

IN the treatment of metallic ores, it has been already hinted, that two objects are in view: the one is to obtain a knowledge of the nature and proportions of their component parts; and the other is to be acquainted with the beſt methods of ſeparating the metals which they contain, that they may be applied in their pure or uncombined ſtate to uſeful purpoſes. In the following treatiſe, therefore, we ſhall keep in view the ſame objects: and under each of the metals we ſhall firſt detail the moſt improved methods of analyſing its different ores; and, ſecondly, give a ſhort account of the beſt and moſt approved proceſſes that are employed in their reduction. The laſt object, however, refers only to ſome of the metals, others not being found in ſufficient quantity, or not being applicable to uſeful purpoſes.

In this treatiſe we ſhall conſider the metals in the ſame order in which they have been deſcribed under MINERALOGY, and to each metal we ſhall devote a particular chapter.

CHAP. I. *Of the Ores of Platina.*

PLATINA, on account of its infuſibility, denſity, and indeſtructibility, is one of the moſt important and uſeful of the metals yet known, and particularly for different chemical inſtruments and utenſils, becauſe there are few chemical agents whoſe effects it cannot reſiſt. Platina is only found in the ſtate of alloy, with rhodium and palladium, two of the newly diſcovered metals; and it is accompanied alſo with another alloy, iridium and oſmium, alſo newly diſcovered metals, as well as with particles of iron, gold, and ſome other ſubſtances. The diſcovery of theſe metals, and the importance of platina itſelf, have rendered the ores of this metal peculiarly intereſting. We ſhall therefore in the preſent chapter, give a pretty full detail of the methods of analyſing the ore, and of working it for the purpoſes of manufacture. Theſe ſubjects will occupy the two following ſections.

SECT. I. *Of the Analyſis of the Ores of Platina.*

The whole of the platina which is brought to Europe, has been previouſly ſubjected to the proceſs of amalgamation in South America; and hence it happens, that a ſmall quantity of mercury remains in it, ſometimes in very ſmall diſtinct particles, but more commonly in a ſtate of combination with gold, in the form of an amalgam. In treating the ores of platina, therefore, the firſt object is to ſeparate the mercury, and the eaſieſt proceſs is to drive it off by means of heat, either in an open ladle, if it be not intended to collect the mercury, or in an earthen retort, if the object of the operator be to retain that metal. The platina remaining after the mercury is thus driven off, appears much yellower, becauſe the particles of gold diſperſed through it exhibit their peculiar colour. The ore is next to be ſpread out thin on a ſmooth table, and by means of a pair of common bellows, the lighter particles may be ſeparated with tolerable

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lerable accuracy from the heavier ones. The lighter particles in the ore are found, on examination, to be minute cryſtals and fragments of quartz, and two kinds of iron ore, which are alſo in fragments, or in the form of ſmall octahedrons. Some of the particles of iron are attracted by the magnet, forming the ore of iron called *magnetic iron-ſand*; but others, which are not attracted by the magnet, give out, when roaſted, a ſlight ſulphureous odour.

The lighter particles being ſeparated by mechanical action, the heavier particles are to be treated with a ſmall quantity of ſlightly diluted nitro-muriatic acid, and by this means the whole of the gold is taken up, with a portion of iron, and a ſmall quantity of platina and the other ingredients. The gold may be thrown down from this ſolution by adding green ſulphate of iron, and it may be purified by mixing it with nitre and borax. If the quantity of platina to be purified be conſiderable, it is an object worth the attention of the chemiſt, to ſeparate and collect the gold, becauſe the proportion of the latter contained in crude platina is not ſmall. Prouſt obtained ſeven ounces of gold from a quantity of platina conſiſting of 100 ounces; and from another quantity of the ſame weight he ſeparated not leſs than 13 ounces of gold *. It may be obſerved that the platina which is whiteſt, is found to be the richeſt in gold, and that the black varieties ſcarcely contain any at all.

* *Ann. de Chim.* xxxviii. 146.

The gold being ſeparated, the platina is next to be digeſted in nitro-muriatic acid, and excepting a black matter, the whole is diſſolved. This black matter, when firſt obſerved, was ſuppoſed to be plumbago; but it appears from the diſcovery of Mr Tennant, to be a compound of two new metals, to which he has given the names of oſmium and iridium. By adding muriate of ammonia to the nitro-muriatic ſolution, almoſt the whole of the platina is precipitated in the form of a yellow powder. This powder is a muriate of ammonia and platina, and it is nearly inſoluble. The ſolution being next treated with zinc, the whole of its metallic contents, excepting the iron, are thrown down. The precipitate thus obtained is to be waſhed and digeſted in nitric acid much diluted. By this means the copper and lead with which crude platina is uſually contaminated, are ſeparated. The remainder is to be diſſolved in nitro-muriatic acid: to the latter ſolution add common ſalt, and evaporate the whole to dryneſs; the ſalt remaining contains the muriates of ſoda and of platina, palladium and rhodium; and as the ſalt of rhodium is found to be inſoluble in alcohol, it may, by means of it, be ſeparated from the former. The platina and palladium now remain in the alcoholic ſolution, and from this the greater part of the platina may be ſeparated by means of muriate of ammonia; and after diluting the ſolution by adding pruſſiate of potaſh, a deep orange precipitate is obtained, which is palladium. By concentrating the remaining liquor, the platina may be precipitated by means of muriate of ammonia.

Sect. II. *Of the Methods of working Platina.*

Platina, on account of its peculiar properties in reſiſting great degrees of heat and the action of many of the moſt powerful chemical agents, is by far the moſt important and valuable of the metals yet known for the purpoſe of conſtructing various inſtruments and utenſils which are found highly uſeful in chemical analyſis. But the refractory nature of this metal has preſented many difficulties, and has greatly exerciſed the ingenuity and ſkill of chemiſts and artiſts to render it malleable and capable of aſſuming the requiſite forms. It has been obſerved that the largeſt and whiteſt grains picked out from crude platina have a conſiderable degree of malleability even when cold; but when they are heated, this property appears in greater perfection: and if two of theſe grains be brought into contact, and ſubjected to the higheſt degree of white heat, the ſtroke of a hammer will make them adhere more or leſs perfectly. In this way, a ſmall maſs of metal may be obtained by the union of a few grains. But it is obvious that the patience and dexterity required in this ſlow and tedious proceſs will prevent it from being practically uſeful.

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In the progreſs of experiments made on platina, it was diſcovered that arſenic combined readily with that metal, and formed an alloy of eaſy fuſibility. The great volatility of the arſenic, particularly when in contact with charcoal, gave reaſon to hope that the whole of it, by proper management, might be driven off, leaving the platina behind in a maſs, and retaining its peculiar and characteriſtic properties. In this way different chemiſts ſucceeded in forming, of this alloy, crucibles and other chemical utenſils, which were found to be leſs fuſible than ſilver, and were capable of reſiſting many of the common chemical agents. The moſt ſucceſsful method of rendering platina malleable, and working it by means of this alloy, was diſcovered by Jeanety, a Pariſian ſilverſmith, who long directed his attention to this object. An account of his method has been given by Berthollet and Pelletier, of which the following is an abſtract *.

* *Ann. de Chim.* xiv. 20.

The crude platina being firſt ground in water, and waſhed for the purpoſe of ſeparating the earthy matters, three half pounds of the metal, three pounds of white arſenic, and one pound of pearl aſhes, are to be well mixed together. A crucible, capable of holding 20 pounds of this mixture, is then to be placed in a furnace of any convenient conſtruction. When the crucible is thoroughly red-hot, introduce one-third of the mixture, and continue ſtirring it with a rod of platina till it comes to a ſtate of quiet fuſion; then add another one-third, ſtirring it in the ſame manner till the fuſion is completed, and afterwards add the remaining one-third, and apply a ſtrong heat, ſo that the whole may become very fluid. Then withdraw the crucible, and when it has cooled gradually, break it up; a well formed metallic button will be found in it, covered by blackiſh brown ſcoriæ, which has a conſiderable action on the magnetic needle. The button, which is very brittle, being broken to pieces, is to be fuſed again with white arſenic and pearl aſhes as before, and the metallic maſs obtained from this ſecond fuſion is generally found to have no effect on the magnetic needle; but if this ſhould not be the caſe, a third fuſion in the ſame way becomes neceſſary.

The firſt ſtep of the proceſs is now completed. A flat-bottomed cylindrical crucible, about three inches and a half in diameter, is to be made thoroughly hot in a furnace, and charged with one pound and a half of the arſenicated platina, mixed with an equal weight of white arſenic, and one half pound of pot-aſh; and when this

mixture

Platina. mixture has been completely fluid, the crucible is to be removed from the fire, and allowed to cool in a horizontal position, that the thickneſs of the cake of metal may be uniform. When the crucible is cold, it is to be carefully broken, and the ſcoriæ being removed, a cake of metal is obtained, well-formed and ſonorous, weighing three ounces more than the arſenicated platina employed. The metal is now quite ſaturated with arſenic. It has been obſerved, that there is no inconvenience from incorporating too much arſenic, for it would appear that the full ſucceſs and rapidity of the purification of the platina, are exactly in proportion to the quantity of arſenic with which it has previouſly combined.

The maſs of metal thus obtained, is placed in a muffle, and the heat is gradually increaſed, till the evaporation of the arſenic commence; after which the temperature is to be kept up as nearly as poſſible at the ſame degree, for the ſpace of ſix hours, carefully watching not to increaſe it, leſt the cake ſhould be brought to a ſtate of fuſion. At the end of the ſix hours, the cake has uſually become conſiderably porous; it is then to be withdrawn, and extinguiſhed in common oil; after which it is returned to the muffle, by which means a further quantity of arſenic is drawn off; and this alternate heating and application of oil are to be continued till the arſenic no longer makes its appearance. In proportion as the arſenic is driven off, the fuſibility of the maſs diminiſhes, ſo that a greater degree of heat may be applied in the latter ſtage of the proceſs. After having carefully burnt off at a high degree of heat the whole of the charcoal which is produced by the decompoſition of the oil, the ſpongy cake of metal is to be digeſted in nitrous acid, and then edulcorated by repeated boiling in water. Three or more of the cakes are then to be placed in a crucible, and expoſed to the higheſt degree of heat in a powerful furnace, and while they are thus rendered ſoft, an iron peſtle let down upon them, will make them cohere; and being withdrawn from the crucible, they are to be heated to the utmoſt in a ſmith's fire, and carefully forged like iron on the anvil, into compact bars.

The cheapneſs of the proceſs now detailed is the only advantage which it holds out, for the platina does not require to be previouſly diſſolved in nitromuriatic acid; but it is to be obſerved, that the metal by this treatment is by no means perfectly pure; a ſmall portion of arſenic and iron ſtill adhering to it, and probably ſome lead and copper, which may have been accidentally mixed with the ore, while it contains the whole of the palladium, oſmium, iridium, and rhodium; and thus contaminated, it is obvious, that it muſt be leſs capable of reſiſting the action of alkalies, and high degrees of heat without injury, than when it is brought to a ſtate of greater purity. Accordingly, other proceſſes for the purification of this valuable metal, have been contrived and practiſed.

The following is the proceſs propoſed by Count Mouſſin Pouſhkin, to render platina malleable. 1. Precipitate the platina from its ſolution by muriate of ammonia, and waſh the precipitate with a little cold water.

2. "Reduce it in a convenient crucible to the well-known ſpongy metallic texture, which waſh two or three times with boiling water to carry off any portion of ſaline matter which may have eſcaped the action of the fire.

3. Boil it for about half an hour in as much water, mixed with one-tenth part of muriatic acid, as will cover the maſs to the depth of about half an inch, in a convenient glaſs veſſel. This will carry off any quantity of iron that might ſtill exiſt in the metal. Platina.

4. "Decant the acid water, and edulcorate or ſtrongly ignite the platina.

5. "To one part of this metal take two parts of mercury, and amalgamate in a glaſs or porphyry mortar. This amalgamation takes place very readily. The proper method of conducting it is to take about two drams of mercury to three drams of platina, and amalgamate them together; and to this amalgam may be added alternate ſmall quantities of platina and mercury till the whole of the two metals are combined. Several pounds may be thus amalgamated in a few hours, and in the large way a proper mill might ſhorten the operation.

6. "After the amalgam is completely produced, it muſt by quickly moulded in bars or plates, or any other forms that may be preferred; taking care that theſe moulded pieces ſhould at leaſt be half an inch in thickneſs, and of a proper length to manage them afterwards in the fire; it is alſo requiſite that the mould ſhould be perfectly even and ſmooth. Half an hour after the pieces are formed they begin to harden by the oxidation of the mercury, and change their brilliant metallic colour for a dull leaden one.

7. "As ſoon as the pieces have acquired a proper degree of hardneſs to be handled without danger of breaking, which commonly takes place in a little more than an hour, place them in a proper furnace, and keep them ignited under a muffle or in a ſmall reverberatory. No other precaution is neceſſary in this operation, but that of not breaking the pieces during their tranſport. The mercury flies off during the heat, and the platina remains perfectly ſolid; ſo that, after being ſtrongly ignited two or three times before the bellows, it may be forged, or laminated in the ſame manner as gold or ſilver; care being taken, at the commencement of the forging, or of paſſing it between rollers, not to apply too great a force till the metal has acquired all its denſity. It is almoſt ſuperfluous to add, that in evaporating the mercury from large quantities of amalgam, a proper apparatus, ſuch as in the ſilver amalgamation, muſt be employed to receive the volatilized mercury; but for ſmall quantities, where the loſs of this metal is of no conſequence, the furnace muſt have a proper chimney to carry off the metallic vapours. When the platina comes out of the firſt fire, its dimenſions are about two thirteenth parts ſmaller every way than the original amalgam from the mould. The whole of this operation ſeems to be governed by the preſſure of the atmoſphere and the laws of coheſive attraction: for the air is driven out from between the molecules of the platina, which by their ſolution in mercury are moſt probably in their primitive and conſequently uniform figure. It is very viſible, and at the ſame time a very amuſing phenomenon to obſerve, (during the proceſs of ignition, which is performed in four or five minutes) how the platina contracts every way into itſelf, as if preſſed by ſome external force."

The count then adds, "that, as ſoon as my amalgam of mercury is made, I compreſs the ſame in tubes of wood, by the preſſure of an iron ſcrew upon a cylinder of wood, adapted to the bore of the tube. This forces out the ſuperabundant mercury from the amalgam, and renders

Platina. renders it ſolid. After two or three hours I burn upon the coals, or in a crucible lined with charcoal, the ſheath in which the amalgam is contained, and urge the fire to a white heat; after which I take out the platina in a very ſolid ſtate, fit to be forged*."

* *Nicholſ. Journ.* ix. 65.

A ſimpler method for rendering platina malleable, and at the ſame time not leſs effectual, has been propoſed by Mr Knight. The following is an account of this method in the words of the author.

"To a given quantity of crude platina I add fifteen times its weight of nitro-muriatic acid (compoſed of equal parts of nitric and muriatic acids) in a tubulated glaſs retort, with a tubulated receiver adapted to it. It is then boiled, by means of an Argand's lamp, till the acid has aſſumed a deep ſaffron colour: it is then poured off; and if any platina remain undiſſolved, more acid is added, and it is again boiled until the whole is taken up. The liquor, being ſuffered to reſt till quite clear, is again decanted: a ſolution of ſal-ammoniac is then added, by little and little, till it no longer gives a cloudineſs. By this means the platina is thrown down in the form of a lemon-coloured precipitate, which having ſubſided, the liquor is poured off, and the precipitate repeatedly waſhed with diſtilled water till it ceaſes to give an acid taſte; (too much water is injurious, the precipitate being in a certain degree ſoluble in that liquid): the water is then poured off, and the precipitate evaporated to dryneſs.

"So far my proceſs is in a great meaſure ſimilar to that which ſome others have alſo followed; but my method of managing the ſubſequent, and which are indeed the principal manipulations, will be found to poſſeſs many advantages over any that has yet been made public. The beſt proceſs hitherto followed has been, to give the precipitate a white heat in a crucible, which in ſome meaſure agglutinates the particles; and then to throw the maſs into a red-hot mortar, or any ſimilar implement, and endeavour to unite them by uſing a peſtle or ſtamper. But the maſs is ſo ſpongy that it is hardly poſſible to get a ſingle ſtroke applied to it before the welding heat is gone; and though by peculiar dexterity and addreſs ſome have in this way ſucceeded, it has been found to require ſuch innumerable heatings and hammerings, that moſt of thoſe who have attempted it, have either failed entirely, or given it up as being too laborious and expenſive. I have ſucceeded in obviating all theſe difficulties by adopting the following ſimple, eaſy, and expeditious method:—

"A ſtrong, hollow, inverted cone of crucible earth being procured, with a correſponding ſtopper to fit it, made of the ſame materials, the point of the latter is cut off about three-fourths from the baſe. The platina, now in the ſtate of a light yellow powder, is preſſed tight into the cone, and, a cover being fixed ſlightly on, it is placed in an air furnace, and the fire raiſed gradually to a ſtrong white heat. In the mean time the conical ſtopper, fixed in a pair of iron tongs ſuitable for the purpoſe, is brought to a red or to a bright red heat. The cover being then removed from the cone, the tongs with the heated ſtopper is introduced through a hole in the cover of the furnace, and preſſed at firſt gently on the platina, at this time in a ſtate nearly as ſoft as dough, till it at length acquires a more ſolid conſiſtence. It is then repeatedly ſtruck with the ſtopper, as hard as the nature of the materials will admit, till it appears to receive no farther impreſſion. The cone is then removed from the furnace, and being ſtruck lightly with a hammer, the platina falls out in a metallic button, from which ſtate it may be drawn, by repeatedly heating and gently hammering, into a bar fit for ſlatting, drawing into wire, planiſhing, &c. Platina.

"Beſides the comparative facility of this proceſs, it has the farther advantage of rendering the platina much purer than when red-hot iron is obliged to be had recourſe to; for platina, when of a white heat, has a ſtrong affinity for iron, and, with whatever care it may have been previouſly ſeparated from that metal, will be found to have taken up a portion of it, when it is employed of a red heat, to ſerve to unite the particles of the platina. To the ſuperior purity of platina, rendered malleable by the proceſs before deſcribed, I attribute the greater ſpecific gravity which I find it to poſſeſs, than that prepared by other methods. Having taken the ſpecific gravity of about ten pennyweights of it, which I had previouſly paſſed repeatedly through a flatting mill, I found it to be 22.264." † *Phil. Mag.* vi.

Another method, which has been ſucceſsfully practiſed, was contrived by Mr Cock. The following is an account of his proceſs. After the ſolution of the platina in nitro-muriatic acid, the liquor is filtered through clean ſand, for the purpoſe of ſeparating the black powder which floats in it. The clear ſolution is then decompoſed by means of ſal ammoniac; the yellow precipitate being collected, is to be moderately well waſhed in warm water and dried; and being diſtributed into ſaucers placed in a ſmall oven, conſtructed for the purpoſe, in which they are to be expoſed for a ſhort time to a low red heat, that the platina may be brought to the metallic ſtate, and the greater part of the ſal ammoniac may be ſublimed. When the platina, after this treatment, is withdrawn, it is in the form of a gray coloured, ſpongy maſs; and in this ſtate half an ounce of it is to be put into a ſtrong iron mould, one inch and a half wide, and two and a half long. It is then to be compreſſed as ſtrongly as poſſible, by ſtriking with a mallet upon a wooden peſtle accurately cut to fit the mould; another half ounce is then added, and treated in the ſame manner, till ſix ounces have been forced into the mould: a looſe iron cover, juſt capable of ſliding down the mould, is then laid upon the platina. This part of the proceſs requires particular care; for if any material quantity of air be left in the maſs, the bar into which it is formed is extremely apt to ſcale and be full of flaws in the ſubſequent operations. The preſſure being properly made, the mould is to be taken to pieces, and the platina will be found in the form of a denſe compact parallelopiped. It is next to be placed in a forge fire of charcoal, and heated to the moſt intenſe white heat, in order to drive off the muriate of ammonia which remains: this being done, it is to be quickly placed on a clear bright anvil, and gently hammered in every direction by a clean hammer. This is ſeveral times to be repeated, at the end of which the maſs will be perfectly compact, and fit to be laminated or wrought in any other manner at the pleaſure of the artiſt. It is to be obſerved, that while the platina is heating, it muſt be looſe in the fire, for if it were held by the tongs, they would infallibly become welded to the platina, and by this means greatly damage it. When the platina is thus drawn down to a compact bar, it will be covered by a ſemivitreous cruſt, ſomewhat

Gold. somewhat reddiſh, chiefly proceeding from particles of the aſhes melted down upon it, and extended by the hammer over its ſurface. To remove this, the bar, after being made red hot, is to be ſprinked over with glaſs of borax reduced to powder, and then kept at a white heat for a few minutes; it is to be plunged into diluted muriatic acid when moderately cool, by which the borax and other vitreous matters will be diſſolved, and the platina with a perfectly clean white ſurface left behind *.

* *Aikin's Diction. of Chem.* &c. ii. 233.

Chap. II. *Of the Ores of Gold.*

Gold exiſts in nature only in the metallic ſtate; but it is ſcarcely ever found perfectly pure, for it is alloyed in different proportions with ſilver, copper, tellurium, and ſome other metals. When it is alloyed with ſilver or copper, or even with both, the gold retains its ductility; but when combined with tellurium, its diſtinctive characters entirely diſappear.

Sect. I. *Of the Analyſis of the Ores of Gold.*

The method of analyſing gold ores is very ſimple. The principal difficulty with which it is attended ariſes from the ſmall proportion of this metal contained in the greater part, even of thoſe ores which are conſidered as very rich. Native gold contains invariably, but generally in ſmall proportion, ſilver or copper, and ſometimes both, and the gangue is often a very hard quartz. In this caſe the following is an approved mode of proceeding. Reduce the ore to fine powder, mix it with ſix times its weight of carbonate of ſoda, or, what anſwers better, with four parts of carbonate of ſoda, and one of glaſs of borax: put the mixture into an earthen crucible, and melt it. Pour out the fuſed maſs on a ſtone ſlab, and detach the ſmall portion remaining in the crucible by means of a little diluted muriatic acid. Reduce the maſs to coarſe powder; put it into a flaſk with the muriatic ſolution; add ſtrong muriatic acid, and apply a gentle heat. Continue the digeſtion, adding from time to time a little nitrous acid, till no farther action is produced, and the undiſſolved reſidue becomes of a pure white colour. Then pour off the liquor, waſh the reſidue, and add the waſhings to the liquor.

1. After the inſoluble reſidue is dried, expoſe it to the ſun, and if it contain any muriate of ſilver, it will aſſume a purpliſh colour. When this is the caſe, let it be mixed with three times its weight of pearl aſh, and fuſed in an earthen crucible for five minutes. The ſilver will thus be reduced to metallic globules, and will be obtained pure by digeſting it in muriatic acid, which combines with the earth and alkali, but does not act on the ſilver.

2. The nitro-muriatic ſolution is now to be carefully neutralized by means of ſoda or of potaſh; and a ſolution of green ſulphate of iron is to be added, as long as any precipitate is formed. The precipitate thus obtained is gold, and this being carefully collected, is to be fuſed in a ſmall crucible with nitre juſt in ſufficient quantity to cover its ſurface.

3. The reſidual liquor, after being decompoſed by the carbonate of an alkali, and the precipitate being well waſhed, is to be digeſted in liquid ammonia, to diſſolve the copper. The ammoniacal ſolution being ſlightly ſaturated with muriatic acid, a rod of zinc being introduced, will precipitate the copper in the metallic ſtate. Gold.

Auriferous pyrites. It appears that iron pyrites of a bronze yellow colour in maſſes, or in ſtriated cubes, and hepatic pyrites, which are found in veins in primitive mountains, contain a quantity of pure gold, or of gold alloyed with ſilver, which is worth the trouble and expence of extracting it. A conſiderable proportion, not only of the American, but alſo of the Hungarian gold, is obtained from ore of this kind. The produce of the latter ſometimes does not exceed a few grains of gold in the quintal, but occaſionally the auriferous pyrites of the Hungarian mines yield not leſs than 450 ounces of gold in the quintal of the ore.

The following is the method of analyſis to be followed in ores of this kind. The pyrites being reduced to powder, is digeſted in muriatic acid, occaſionally adding a ſmall portion of nitric acid, till every thing ſoluble is taken up. The reſidue, after being well waſhed and dried, is to be weighed, and expoſed to a heat which is juſt ſufficient to burn off the ſulphur, the quantity of which is indicated by the loſs of weight. The reſidue is again to be digeſted in nitro-muriatic acid, and this ſolution is to be added to the firſt. The earthy reſidue, which contains the ſilver in the ſtate of muriate, is then to be fuſed with an equal weight of glaſs of borax, and three times the quantity of pearl aſhes. By this proceſs the ſilver is reduced and may be ſeparated from the alkali and the earth by means of muriatic acid very much diluted. The nitro-muriatic ſolution is to be neutralized by a fixed alkali, and if it be afterwards treated with nitrate of mercury prepared in the cold, the gold will be thrown down in the ſtate of a brown powder. It may be reduced to the metallic ſtate by fuſing it with nitre. The oxide of iron which remains in ſolution, may be obtained in the uſual way in the ſtate of magnetic oxide.

Auriferous galena.—Galena, or the native ſulphuret of lead, almoſt always contains a ſmall portion of ſilver, and very often it is in ſuch quantity as to be worth the trouble of extracting it. Galena ſometimes has alſo combined with it a little gold as well as ſilver, and it is worked as one of the ores of gold. This is the caſe with ſome of the galena of Hungary, as that of Boicza yields 1½oz. of alloy in the quintal, of which 31 parts are ſilver, and one of gold.

The analyſis of auriferous galena is to be conducted nearly in the ſame way as the auriferous pyrites. The pulveriſed ore being digeſted in nitro-muriatic acid, the gold and the lead, and, if any are preſent, the iron and antimony, are taken up; leaving behind the earthy matters, as well as the ſulphur and ſilver, which may be ſeparated according to the method employed in the former proceſs. By gradually evaporating the nitro-muriatic ſolution, a cryſtallized muriate of lead is obtained; and by again diluting the ſolution with water, the gold may be ſeparated by adding nitrate of mercury.

The analyſis of the ores of gold containing tellurium, will be given under the head of that metal.

Sect. II. *Reduction of the Ores of Gold.*

Many of the moſt profitable veins of gold are of trifling magnitude, but at the ſame time yield ample returns to the miner, although they are mixed with ſo large

Gold. large a proportion of ſtony matter and other impurities as would render the working of any other metal altogether unprofitable. This obviouſly ariſes from the great commercial importance of gold compared with other metals, which no doubt is owing as well to its rarity as to its peculiar properties. In the Hungarian gold mines, which are the richeſt yet known in the old continent, the attention of the miner is not merely limited to the ſtrings of ore, but to the whole contents of the vein, which are uſually extracted and raiſed to the ſurface in large maſſes. Theſe maſſes are diſtributed to the workmen, who break them down, firſt with large hammers, and afterwards with ſmaller ones, till they are reduced to pieces of the ſize of a walnut. In the courſe of this proceſs, every piece is carefully examined, and arranged according to its value. The ſmalleſt viſible grain of native gold is ſeparated from the quartz in which it is chiefly imbedded, and put by itſelf. The auriferous pyrites and galena are alſo put into ſeparate heaps; even the ſmall ſplinters that are detached in breaking down the maſſes, and the ſand and mud of the mine, are all collected, waſhed, and ſifted, and arranged according to their apparent richneſs. What has been rejected in the firſt examination, is re-examined by boys, whoſe labour is not of great value, and who pick out almoſt the whole that has been overlooked by the men, and arrange it in the ſame manner.

The native gold with the matrix attached to it, is again to be broken by hand into ſtill ſmaller pieces, by which means other impurities and ſtony matters are ſeparated. The ore is then introduced into a wooden box floored with caſt-iron plates; and by the action of two or more heavy ſpars of oak, which are ſhod with iron, and alternately worked like the common ſtamping mill, it is reduced to a fine powder. This powder, which is called flour, is then removed into a veſſel like a large baſon, and is mixed with ſuch a quantity of ſalt and water as will render it damp. The workman then takes a thin porous leather bag, introduces a quantity of mercury into it, and by a regular and continued preſſure forces the mercury in very minute drops through the leather. In this divided ſtate it falls upon the pulverized ore, and is immediately kneaded up with it, till the requiſite quantity, which depends on the proportion of gold, has been added. After completing this part of the proceſs, the next object is to incorporate the mercury and the gold. This is effected by rubbing the mixture together for ſome time by means of a wooden peſtle. The mixture is then heated in a proper veſſel, and ſubjected for three or four days, to the temperature of boiling water; and, laſtly, the mixture is to be carefully waſhed by ſmall parcels at a time, ſo that the earthy particles may be carried off by the water. The mercury combined with the gold, only remains behind, in the form of amalgam. A portion of this mercury is then ſeparated by preſſure in a leathern bag, and the remainder is driven off by diſtillation, leaving behind the gold and ſilver with which it may be alloyed.

But a more complicated proceſs is requiſite in ſeparating that portion of the gold which is inviſibly diſperſed in the pyrites, in galena, and other metallic ſubſtances, as well as the ſtony parts of the matrix. In the treatment and ſorting already deſcribed, thoſe ores are ſeparated, not only according to their apparent richneſs, but they are arranged alſo according to the degrees of hardneſs. They are then carried to the ſtamping mill, of which the principal parts are, 1. The coffers or ciſterns, in which the ore is reduced to powder, and through which a ſtream of water continually paſſes, and ſo managed as to be increaſed or diminiſhed at pleaſure: 2. The ſtampers, or vertical beams, which are ſhod with iron; and 3. The axle, which is fixed horizontally, and one end of which works in a pivot, while the other is rivetted into the centre of a large water wheel. The mode of action of this apparatus is obvious. A ſtream of water falls upon the wheel, and turns it round, as well as the axle to which it is attached. The cogs, which are faſtened to the axle, alternately raiſe the ſtampers to a given height, and then let them fall upon the ore placed in the coffers. And as the ore is ſufficiently broken, it is carried by the ſtream of water continually paſſing through, out at the ſides of the coffer into the labyrinths, where the ſtony and metallic contents of the ore are depoſited, according to their ſpecific gravity, nearer to or at a greater diſtance from the aperture. The coffer is a rectangular hole ſunk below the level of the ground, and it is about five feet in length, two feet and ſometimes leſs in width, and four feet deep. Five ſtampers are employed, they are ſtrong oaken beams ſhod with iron, and weighing about 200 pounds each. They are placed ſide by ſide, at the diſtance of about $2\frac{1}{2}$ inches from each other.

Gold.

When the ore is to be pounded, the firſt thing is to cover the bottom of the coffer with a flooring or pavement, compoſed of large pieces of the hardeſt and pooreſt part of the vein. Theſe pieces are to be cloſe ſet together, and a floor of this kind is found to anſwer better than an iron floor. The thickneſs of the floor is to be proportioned according to the degree of hardneſs of the ore to be pounded; for it is obvious that the higher it is, the ſmaller will be the ſpace through which the ſtampers fall; and their momentum will therefore be proportionally diminiſhed. One precaution muſt be invariably obſerved, that the part of the floor immediately under the middle ſtamper be about two inches lower than that below the ſtamper on each ſide, and that this again be an inch lower than that beneath the two outermoſt ſtampers.

After the coffer is thus prepared, the machinery is ſet in motion, a ſmall ſtream of water being allowed to flow into the coffer. The ore is to be carefully thrown in, juſt below the middle ſtamper, or the proper quantity is ſupplied by means of a hopper. The ore being thus broken down by the middle ſtamper, is gradually delivered to the ſtampers on each ſide, where it is ſtill farther reduced to powder, and from them it paſſes on to the two outermoſt ſtampers, where it is reduced to ſuch a degree of fineneſs as to be for a time ſuſpended in the water, and carried along with the ſtream through the openings at the ends of the coffer.

In ſtamping the ores of gold and ſilver, great attention is neceſſary, that no pieces of ore be ſubjected to the proceſs that can be conveniently ſeparated from the gangue by the hand; and that the ore be reduced to a coarſe or fine powder, according to its nature. When native gold is diſperſed in minute particles, in a hard ſiliceous matrix, it is found impoſſible to ſeparate the whole of the metal, unleſs it be very finely pulverized; and in this caſe the ore may be reduced to fine powder, both on account of the great difference of the ſpecific gravity of the two ingredients of the ore, and alſo becauſe the ſiliceous particles, however minute, acquire no degree of tenacity, ſo as to adhere to the particles of gold. In

Gold. ſtamping ores of this kind, therefore, the coffers may be ſet very low, that the ſtampers may have the greater power, and a ſmall ſtream of water only may be let in, that the current which paſſes out may carry with it only the ſmaller particles. But when the gold is diſperſed in an indurated and ochrey clay, or in calcareous ſpar; if the ore in this caſe be not finely pulverized, a great proportion of the metal will be retained in the earthy matrix; and if the ſtamping be continued too long, the whole will be brought to a fluid mud, which will prevent the ſubſidence of the particles of gold. In the management of this part of the proceſs, no ſmall degree of ſkill and experience is requiſite, to obtain the greateſt produce of gold.

The reduction of the ore to grains of a uniform ſize, greatly facilitates the waſhing which follows the ſtamping, and yields a greater product of metal. This is effected by taking care that the ore, when firſt introduced into the coffer, ſhall fall under the middle ſtamper, and alſo by the velocity of the water wheel being properly regulated. When the motion of the ſtampers is too ſlow, loſs of time is the only conſequence; but when the motion is greatly accelerated, the water is violently thrown about, carrying with it to the apertures at the end of the coffer, pieces of the ore that are not ſufficiently comminuted.

The ore being reduced to particles of a ſufficient degree of fineneſs to be carried by the force of the water out of the coffer, paſſes into ſhallow channels of different dimenſions. Theſe channels or troughs, the whole ſeries of which is called a labyrinth, are conſtructed of wood or ſtone, and communicate with each other at the extremities. The various parts of the ore are depoſited in theſe channels, according to their ſpecific gravities; the heavieſt particles are detained in the firſt, and the lighteſt are carried along, and ſubſide in the laſt and loweſt. Each of the channels has a groove at its loweſt extremity, and thus admits of being cloſed at pleaſure by pieces of wood about an inch in height, which ſlide down upon each other. By varying the rapidity of the current through the channels, the heavy particles can be more accurately ſeparated from the lighter ones, which is done by diminiſhing the ſlope, and increaſing the width and length of the channels.

But with whatever care the firſt operation of the waſhing may be conducted, it is by no means ſufficient to ſeparate the whole of the ſand from the ore. A ſecond waſhing on tables, as they are called, is requiſite. Theſe tables are long wooden planes, which are conſiderably inclined, and are croſſed at regular diſtances by narrow ſhallow grooves. A long wicker baſket, or perforated wooden trough, filled with the waſhed ore, is fixed to the upper extremity of the table, and a ſmall ſtream of water is admitted, which paſſing between the twigs of the baſket, carries with it particles of the ore. Theſe particles are either carried by the current off the table, or are depoſited, according to their ſpecific gravity, in the grooves, the heavieſt particles ſubſiding firſt. In this way the auriferous ores of iron and copper pyrites, galena, &c. are ſufficiently ſeparated from the quartz and other ſtony matter, to be fit for the furnace; but for the ores of native gold, a third waſhing is neceſſary. This is performed in ſmall quantities at a time, in a wooden veſſel reſembling in ſhape a common fire ſhovel without a handle, but having the ſides more elevated, and being furniſhed with two ears, by which it is held during the operation. The ore is put into this veſſel, which is gently immerſed in water, and a circular motion is communicated to it by a peculiar dexterity, which can only be acquired by practice. By this motion in the water the lighter particles are gradually thrown out of the veſſel, and ſcarcely any thing remains behind but the gold, which is either amalgamated or fuſed with the addition of a little nitre, in an earthen crucible. Here it may be added, that the ſeparation of the gold which is found in alluvial ſoil, or in the ſands of rivers, is conducted preciſely in the ſame way, only that it is not neceſſary to be ſubjected to the proceſs of ſtamping previous to waſhing. Gold.

The produce of the proper auriferous ores is ſeldom of ſufficient value to admit of the ſame attention in waſhing as native gold; and therefore it is always found, after this operation, mixed with a conſiderable proportion of earthy matters. When the metallic part is compoſed of pyrites, which is frequently the caſe, it may be uſeful, previous to the fuſion of the ore, to give it a moderate roaſting, for the purpoſe of expelling the greater part of the ſulphur; but it muſt be obſerved, that this proceſs is to be regulated by the quantity, and refractory nature of the ſtony part of the ore; becauſe the ſulphur in the ſubſequent fuſion acts the part of a flux, and therefore the cleaner the ore, the more perfectly it may be roaſted. This part of the proceſs being completed, a little quicklime, as a flux, is added, and carefully mixed with the ore, and a portion of galena, according to the proportion of gold and ſilver contained in the pyrites, previouſly diſcovered by aſſaying it. This mixture is next to be introduced into a reverberatory furnace, which is to be raiſed to a red heat; and when the mixture begins to clot together, it is to be ſtirred from time to time, and kept at a temperature inferior to that of fuſion, till part of the ſulphur is expelled; and when this is accompliſhed, the fire is to be increaſed, ſo that the whole may be brought to a ſtate of thin fuſion, after which it is let out in the uſual way, and received in a mould of ſand. During the proceſs of fuſion, the iron having a very ſtrong affinity for ſulphur, recombines with that portion of which it had been deprived by the roaſting, in conſequence of the decompoſition of the ſulphurets of lead and copper with which it is mixed; and theſe metals, by their ſpecific gravity, fall in drops through the vitreous ferruginous ſcoriæ, and carry with them the gold and ſilver, with which they unite at the bottom into a denſe maſs of metal. Thus it happens that the pig formed in the mould conſiſts of two parts, which adhere to each other, but may be eaſily ſeparated by the hammer. The ſuperior and the larger portion, is a cellular maſs of ſcoria, and the lower is a black, heavy, compact maſs, containing the gold and ſilver, along with lead, copper, and a portion of ſulphur and iron. It is again broken into pieces, and roaſted and fuſed once or twice, till the whole of the ſulphur and other impurities are ſeparated, and nothing remains but the metallic ſubſtances.

In the farther treatment of the ores of gold, the object of the refiner is to ſeparate it from the metallic ſubſtances with which it is alloyed. We ſhall now mention the different methods which are followed in ſeparating the metals from gold with which it is uſually alloyed.

1. *Separation*..

Gold.

1. *Separation of gold from platina.*—As platina, like gold itſelf, is not ſuſceptible of oxidation by expoſure to heat and air, it cannot be ſeparated by the proceſs of cupellation; and platina having as little affinity for ſulphur as gold itſelf, that ſubſtance, or the ſulphurated metals, cannot be ſucceſsfully employed for this purpoſe. It has been found that mercury combines more readily with gold than with platina, and from the knowledge of this circumſtance a method has been deviſed of ſeparating theſe metals. When the proportion of platina is ſo large, that the maſs is brittle, it muſt be reduced to powder in a mortar; but if it be ductile, it may be reduced to ſmall pieces by granulation. A quantity of mercury equal to ſeven or eight times the weight of the alloy, is then to be heated in an iron crucible, and raiſed to the boiling point. The alloy being firſt made red hot, is to be dropt in, and the whole kept for half an hour nearly at the ſame temperature. The mixture is then emptied into an iron mortar, and being covered with hot water, is to be carefully triturated for ſome hours, the water being renewed from time to time. In this way the gold combines with the mercury, and a conſiderable proportion of the platina will riſe to the ſurface of the amalgam in the ſtate of a black powder, which may be eaſily ſcraped off. In this way the alloy is to be purified as much as poſſible, and the ſuperfluous mercury may be ſeparated by ſtraining through leather, and the amalgam is deprived of the remaining mercury by the proceſs of diſtillation. The gold, which ſtill holds a ſmall quantity of platina, is now to be melted with three times its weight of ſilver; and the mixture being granulated, is to be parted by means of nitrous acid. It has been found (although it be a ſingular circumſtance) that pure platina, or even when mixed with gold, is perfectly inſoluble in this acid; but, when combined with a large proportion of ſilver, it is readily diſſolved, and the ſolution is of a dark yellowiſh brown colour; and, therefore, by digeſting this triple alloy of gold, platina, and ſilver, in nitrous acid, the ſilver and platina are diſſolved, and the gold remains behind. But it may be neceſſary to aſcertain whether the whole of the platina be ſeparated. This is done by melting a few grains of the gold, after careful waſhing, with three times their weight of ſilver, and treating it as before with nitrous acid. If it contain one half per cent, or even a ſmaller proportion of platina, the acid will be perceptibly coloured, and this being the caſe, the proceſs muſt be repeated again on the whole maſs. But this is rarely neceſſary when the previous trituration with mercury has been carefully performed. By adding to the remaining nitrous ſolution, a ſolution of common ſalt, the ſilver will be precipitated, leaving the platina in the ſolution.

By the following method, which is ſtill more compendious, gold may be ſeparated from platina. The alloy is diſſolved in nitro-muriatic acid, and the gold is precipitated by means of carbonate of ſoda, or a large quantity of green ſulphate of iron, neither of which has the effect of decompoſing the ſolution of platina. The precipitated gold being dried, and mixed with a little borax and nitre, is ſubjected to fuſion, after which it will be found in a ſtate of perfect purity.

2. *Separation of gold from ſilver.*—In ores in which the proportion of gold is ſmall, the ſilver may be conveniently ſeparated by means of ſulphur. The alloy is firſt melted, and granulated, by pouring it into cold water, which is kept in conſtant agitation with a rod or wicker bruſh. From an eighth to a fifth of the granulated metal is reſerved, and the remainder is carefully mixed with about $\frac{1}{8}$ of its weight of powdered ſulphur, which adheres readily to the moiſt grains. The mixture is introduced into a covered crucible, and kept for ſome time at a gentle heat, that the metal may be completely penetrated by the ſulphur, after which the heat is increaſed till the whole maſs is brought into fuſion. This ſulphuret of ſilver becomes a tough, viſcous fluid, which retains the particles of gold, and prevents them from ſubſiding. The maſs being kept in fuſion for about an hour, that the union of the ſulphur and ſilver may be completed, and any exceſs may be burnt off, a third part of the reſerved ſilver in grains is to be added, and when it is melted, is to be ſtirred with a wooden rod, that it may be accurately mixed with the other materials, and brought into contact with the gold, with which it immediately enters into combination. The fuſion being continued another hour, a ſimilar quantity of grained ſilver is to be added, and after a third hour has elapſed, the remaining third is introduced, and treated in the ſame manner. The crucible, which is now to be kept carefully covered, is to be expoſed to a high temperature for three hours, while the melted maſs is ſtirred from the bottom every half hour. At the end of this time the ſurface of the maſs, inſtead of being dark brown, becomes whitiſh as the ſulphur eſcapes, and ſome bright white drops of melted ſilver, about the ſize of peaſe, make their appearance. The fuſed maſs is now to be poured into a greaſed cone; and when it is cold, it will be found to be compoſed of a maſs of ſulphuret of ſilver, reſting upon a white metallic button, which is nearly equal in weight to the added ſilver, and contains the whole of the gold that originally exiſted in the entire maſs. If it appears that any of the gold remains among the ſulphuret of ſilver, it may be ſeparated by fuſion in an open crucible. By this proceſs part of the ſulphur is burnt off, and a correſponding quantity of ſilver is reduced to the metallic ſtate, which being carefully mixed with the remainder, and repeatedly ſtirred with a piece of ſtick, the whole of the gold remaining in the ſilver, which is ſtill ſulphurated, will be attracted; and by being poured into a cone, will be collected at the bottom in a maſs.

The ſilver containing the gold, which is collected in theſe two operations, being melted and granulated, is ſubjected to one or more repetitions of the ſame proceſs, till the ſilver that remains is found to contain a ſufficient proportion of gold, to render it worth while to proceed to the proceſs of parting by means of aquafortis. The whole of the ſilver may be ſeparated by means of ſulphur; but when the proportion of gold is conſiderable, the ſulphuret of ſilver always takes up a part of it, which cannot again be entirely ſeparated without repeated fuſions; and therefore, when the gold is equal to $\frac{1}{20}$ of the ſilver, a further purification by means of ſulphur, will ſcarcely be found advantageous.

Gold.

An ingenious and economical method of ſeparating the gold from old gilt ſilver lace or wire, has been extenſively practiſed in Saxony. This method proceeds on the principle, that the affinity of gold for copper, and of ſilver for lead, is much greater than the affinity which ſubſiſts between gold and ſilver; and it is con-

Gold. ducted in the following manner. The alloyed metal is firſt granulated, and $\frac{1}{10}$ of it is mixed with $\frac{1}{2}$ its weight of litharge, and $\frac{1}{8}$ of ſandiver. This is called the precipitating mixture. The next is mixed with $\frac{1}{8}$ of powdered ſulphur, and is brought into fuſion, which being complete, as will appear from the flaſhing at the ſurface, $\frac{1}{2}$ of the precipitating mixture is added at three different times, allowing an interval of five minutes between each time; and the fuſion is then continued for ten minutes longer. Part of the ſulphurated ſilver is taken out with a ſmall crucible made red hot, and the remainder being poured into the melting cone, a quantity of metallic ſilver combined with the greateſt part of the gold, ſubſides to the bottom. The ſulphuret of ſilver is again melted, and the remaining part of the precipitating mixture is added as at firſt, and thus a ſecond portion of gold alloyed with ſilver is obtained. But as the ſulphuret ſtill retains a ſmall portion of gold, it is to be fuſed a third time; and a precipitating mixture, equal in weight to the former, but conſiſting of an alloy of equal parts of copper and lead, is to be added, and thus a third precipitate of gold holding ſilver is obtained, and the ſulphuret is now deprived of the whole of its gold.

The different metallic maſſes thus obtained, are melted with $\frac{1}{6}$ of lead, then granulated, and treated in the ſame way as at firſt, with ſulphur and the precipitating mixtures. The ſilver thus obtained being rich in gold, is firſt to be granulated, then mixed with $\frac{1}{10}$ of ſulphur, and kept in fuſion for about half an hour without any addition; and being poured into a cone, the ſulphuret is ſeparated from the metal, and this laſt is treated two or three times more with ſulphur, in a ſimilar manner. The metallic button obtained, which now appears of a yellow colour, is to be melted with one ſixteenth of copper, then granulated, and mixed with one ſixteenth of ſulphur; and the mixture being firſt gently heated in a covered crucible, and kept in fuſion for about a quarter of an hour, is poured into a cone, at the bottom of which the gold is collected of a braſs colour, and about eighteen carats fine. The purification is afterwards completed by means of ſulphuret of antimony, a proceſs which will be afterwards deſcribed.

3. *Parting operation.*—When the proportion of the gold and ſilver, alloyed together, is ſuch, that the former is not much leſs than one ſixteenth, or greater than one fourth of the whole maſs, the operation of *parting* may be followed. In this method the gold is ſeparated from the ſilver by means of diluted nitric acid, or, as it is termed by manufacturers, *aquafortis*, which diſſolves the ſilver, and leaves the gold untouched. The button of gold and ſilver is prepared for this proceſs by flattening with the hammer, again heating it red hot, and ſlowly cooling to anneal it for the purpoſe of increaſing its malleability. It is then to be extended into a ſmall plate as thin as a wafer, by paſſing it between rollers of poliſhed ſteel, again heated, but only to redneſs, and laſt of all rolled up in the form of a ſmall looſe coil or ſpiral, called a cornet. The annealing is uſeful in allowing the metal to be rolled up without cracking, and at the ſame time the freer action of the acid, in conſequence of the texture of the metal being ſomewhat opened.

The cornet thus prepared is introduced into a pear-formed matraſs, called a *parting-glaſs*, and three or four times its weight of pure nitric acid of 1.25 ſpecific gravity are added; the mouth being ſlightly covered to keep out the duſt, the glaſs is ſet on a ſand bath, or over charcoal, to boil. As ſoon as it becomes warm, the acid begins to act on the ſilver, and diſſolves it with the evolution of nitrous fumes. During the whole action of the acid, the cornet appears all over ſtudded with minute bubbles, and when theſe diſcontinue, or run into one another, forming a few large ones, the action of the acid is nearly over. The proceſs is uſually completed in about fifteen or twenty minutes from the time that the acid begins to boil. The cornet now appears corroded throughout, and has loſt during the ſolution the whole of the ſilver; and the remaining gold which is ſlender and brittle, retains the ſame ſpiral form. Indeed it is of conſiderable importance that it ſhould not be broken, for much of the accuracy of the operation depends on having the gold in one piece and not in fragments. Gold.

The acid ſolution of ſilver, while yet hot, is next to be carefully poured off, and a portion of freſh acid, ſomewhat ſtronger, is to be added, to ſeparate all the remains of ſilver; the boiling is to be repeated as before, but only for five or ſix minutes; it is then poured off and added to the former ſolution, and the parting-glaſs is filled with hot diſtilled water, to waſh off the remains of the ſolution. The cornet, which is now of a brown colour and ſpongy texture, and has little of the metallic appearance, is taken out in the following manner. A ſmall crucible is inverted over the mouth of the parting-glaſs, while it is yet filled with the diſtilled water, and the latter being rapidly inverted upon the crucible, the cornet falls ſoftly through the water down the neck of the glaſs into the crucible, where it is depoſited, and the water is carefully poured off. The crucible after being dried is next heated to redneſs under a muffle. The cornet contracts greatly in all directions, becomes of a firm texture, and reſumes its metallic luſtre; and after being brought to a red heat and cooled, it exhibits the appearance of a cornet of pure gold, having all the ſplendour, ſoftneſs, and flexibility of this precious metal. By accurate weighing, the amount of the product is preciſely aſcertained, and thus the operation of parting is completed.

But if the proportion of gold amount to one third of the maſs, it combines with part of the ſilver, and protects the latter by its inſolubility from being acted on by the acid, ſo that in the proceſs of parting, too great a proportion of gold in the alloy muſt be avoided; and farther, as the acid is expenſive, unleſs the ſilver be rich in gold, this proceſs, which is in many reſpects convenient, will not be found economical. In reducing the fineneſs of the alloy which is too rich in gold to be advantageouſly parted by itſelf, it will be the object of the refiner not to employ pure ſilver, but ſuch as contains a ſmall portion of gold; and at the ſame time, it will be his ſtudy to ſave the quantity of acid.

The following is the uſual method of conducting the proceſs of parting. After ſelecting a proper quantity of rich and poor ingots of mixed metal, the whole is to be fuſed in an iron crucible; and being well mixed by frequent ſtirring, it is to be removed by a clean iron ladle, and granulated in cold water. The parting glaſſes, which are nearly of the form of a truncated cone with a rounded bottom, are about twelve inches high and ſeven inches wide at the lower extremity, and they ſhould be of equal thickneſs, well annealed, and free from any kind of flaws. About forty ounces of metal are introduced into each glaſs, and the nitrous acid, half ſatura-

Gold. ted with ſilver, is added till it ſtand two or three fingers breadth above the ſurface of the metal. Twenty or even more of theſe glaſſes are placed in a ſand bath, and the heat, which ſhould at firſt be moderate, is gradually increaſed till it nearly reach the boiling point about the time that the acid is ſaturated. The nitrate of ſilver is poured off, a new portion of ſtronger acid is added, and boiled as before till it is nearly ſaturated, when almoſt the whole of the ſilver is taken up, and what remains undiſſolved has the appearance of a brown mud, and conſiſts of the gold finely divided with a ſmall portion of ſilver. The acid again ſaturated is poured off, and a third portion of ſtill ſtronger acid is added, which is kept at the boiling temperature till the evolution of nitrous gas ceaſes, and the bubbles are enlarged, which ſhews that all the ſilver is taken up. The acid is then decanted off, and reſerved for the firſt part of a future proceſs of the ſame kind; and the gold is repeatly waſhed with freſh portions of hot water till the waſhings dropped on a poliſhed copper plate produce no ſtain; and the powder, being dried and mixed with a little nitre and borax, is fuſed, and is then in a ſtate of purity.

To decompoſe the nitrate of ſilver with the view of procuring the pure metal, the ſolution is poured into a wooden veſſel lined with copper, and in which are placed plates of copper that the ſilver may be precipitated from its ſolution in conſequence of the greater affinity of the nitrous acid for the copper. The ſurface of the plates is to be cleared from time to time of the ſilver cruſt, that a freſh ſurface of copper may be expoſed to the action of the acid, and the decompoſition of the nitrate of ſilver may be promoted; after which the nitrate of copper formed in the ſolution is decanted off, the plates are ſcraped, and the ſilver being waſhed is fuſed with nitre, and is alſo obtained in a ſtate of purity.

4. *Separation of gold from ſilver, or other metals by ſulphuret of antimony.*—All the common metals, excepting zinc, which come under the denomination of imperfect metals, may be ſeparated from gold by this proceſs; for as gold is incapable of combining with ſulphur, and as the affinity of almoſt all the other metals for ſulphur is ſtronger than that of antimony, it is ſufficiently obvious, that an alloy of gold with any of theſe metals, as for inſtance gold and copper, being added to ſulphuret of antimony, the ſulphur will combine with the copper, and the antimony will form an alloy with the gold. When common crucibles are employed for this proceſs, ſome previous preparation is neceſſary. A well burned crucible is ſelected, and ſoaked for two or three days in linſeed oil, which is then to be cleared away from the inner ſurface till ſome finely powdered glaſs of borax duſted upon it ſhall juſt adhere, when it is to be put into a dry place for two or three weeks, after which it is fit for uſe.

The gold alloy is firſt melted in the crucible, and then about twice its weight of coarſely-powdered ſulphuret of antimony is thrown in at two or three different times. At each addition the mixture froths and ſwells up, ſo that the crucible muſt be larger than the quantity contained, and great caution muſt be obſerved to prevent any bits of charcoal dropping into the crucible; for then the maſs of melted matter would certainly flow over. When the mixture begins to ſparkle on the ſurface, and appears to be perfectly fluid, it is to be poured into a melting cone which has been previouſly heated and greaſed, and the ſettling of the gold at the bottom is promoted by communicating a tremulous motion to the cone by means of ſlight blows. When the matter has become cold, it is removed from the cone by giving it a few blows in an inverted poſition. The maſs is compoſed of an alloy of gold and antimony covered with ſcoriæ conſiſting of the metal formerly alloyed with the gold now in combination with the ſulphur or the antimony. But the gold ſtill retains a little of its alloy, and from this it is to be freed; the ſame proceſs is to be repeated not only a ſecond, but even a third and fourth time, with a ſimilar quantity of ſulphuret of antimony. The metals from which gold may be advantageouſly purified by this proceſs are iron, copper, tin, lead, and ſilver. Gold.

5. *Separation of gold from antimony.*—When the proportion of antimony exceeds that of the gold, the alloy is brittle. It muſt be reduced to ſmall pieces, mixed with one-fourth its weight of ſulphur, melted in a covered earthen crucible, and after the fuſion is completed, poured into a melting cone previouſly heated and greaſed. When examined after being cooled, it will be found to conſiſt of two parts, which may be eaſily ſeparated by melting the alloy, expoſing it to a high temperature, and at the ſame time directing a ſtream of air from a pair of bellows into the crucible which contains it. By this means the antimony is oxidated, and driven off in the form of white vapour. The gold having acquired a clear bright green colour, it is to be poured out and melted again in a ſmaller crucible with a little nitre. The remaining portions of antimony will be oxidated, and driven off from the gold as before. The ſmall proportion of gold which remains attached to the ſulphuret of antimony, may be ſeparated by bringing the whole maſs into thin fuſion, and precipitating part of the antimony by adding about one-fifth of its weight of iron filings. In this way the gold falls down in the form of alloy with the antimony, and it may be ſeparated by means of the proceſs deſcribed above.

Separation of gold from lead by cupellation.—This is the moſt economical method of ſeparating gold from lead. The nature of the proceſs of cupellation, and the method of conducting it, have been already deſcribed under CHEMISTRY, N° 2026. p. 682. But beſides lead, other metals may be ſeparated from gold, by employing that metal as a flux, the effects of which in ſcorifying and carrying down moſt of the imperfect metals, are ſuch, that by the proceſs of cupellation with lead, which is to be repeated according to the proportion of the alloy, and its affinity for the gold, almoſt every particle of the metals combined with it, may be ſeparated. This method is uſually followed where the proportion of alloy is but ſmall; but when it is more conſiderable, ſome of the other methods are preferable. It is found, however, that in the cupellation of pure gold with lead, it always retains a ſmall portion of this metal, which affects its colour and ductility. But if the alloy to be purified, contain, beſide lead, to the amount of one-twenty-fourth of the gold of copper, the whole of the lead may be ſeparated, but ſcarcely any of the copper; and if it contain ſilver in a greater proportion than that of copper, the latter may be ſeparated by the proceſs of cupellation, and a little of the lead remains. But if the ſilver

exceed

Gold. exceed the gold, or be equal to it, the copper and lead may be entirely separated, while the gold and silver remain behind. From a knowledge of these facts, the refiners, in separating the base metals from gold, by the process of cupellation, add to the mixture a considerable proportion of silver. When the gold is alloyed with tin, cupellation with lead alone will not succeed, because the tin, with part of the lead, forms a spongy and refractory oxide, and floats on the surface of the fluid metal, and at the same time retains part of the gold. But as iron is found to combine with tin into an alloy that may be scorified by lead, the addition of iron filings during the process removes the difficulty.

The following table shews the quantity of gold which is got from the different countries of the old and new world, taken on an average, between the years 1790 and 1802.

Old Continent.	*Kilogrammes.*	
Siberia,	1700	
Africa,	1500	
Hungary,	650	
Saltzburg,	75	
Norway,	75	
Total of the Old Continent,		4000
New Continent.		
North America,	1300	
South America—		
Spanish possessions,	5000	
Portuguese possessions,	7500	
Total of the New Continent,		13800
		* 17800

* *Brongniart*, ii. 351.

The kilogramme being equal to 2lbs. 3oz. 5drs. avoirdupois, the whole amount is equal to about 39,285 pounds avoirdupois.

Chap. III. *Of the Ores of Mercury.*

The ores of mercury present less variety than those of many other metals; and on account of its peculiar properties, the management of its ores, whether for the purposes of analysis or reduction, is less complicated and difficult.

Sect. I. *Of the Analysis of the Ores of Mercury.*

To analyze the ore of native mercury, or native amalgam, it is to be digested in nitric acid of moderate strength; the mercury and silver, and bismuth, will be dissolved, and if the ore should contain a minute portion of gold, it will remain untouched in the form of a brown powder at the bottom of the solution. The nitrous solution is next to be gently evaporated till it is so far concentrated as to be on the point of crystallizing. It is then to be poured into a large quantity of pure water, by which means the most part of the bismuth will be separated, and a solution of common salt, or any other neutral muriate, being added to the filtered liquor, the silver and mercury will be precipitated in the form of muriate. After this is separated, add to the clear liquor some carbonated alkali, while any precipitation takes place; then boil the liquor, and separate the precipitate by filtration. The muriatic precipitate is next to be digested in nitro-muriatic acid moderately diluted, which takes up every thing excepting the muriate of silver, from which, after being washed and dried, the proportion of silver in the ore may be easily ascertained. The nitro-muriatic solution is now to be decomposed at a boiling heat, by a carbonated alkali, and the white precipitate thus obtained being added to the former carbonated precipitate, mix them with a little oil, or what answers better, sugar, and distill in a small coated glass retort. Raise it gradually to a red heat, and continue at that temperature while any mercury comes over. The residue in the retort consists of a little metallic bismuth and charcoal. Mercury.

Native amalgam.—With the view of ascertaining the proportion of mercury and silver in this ore, Klaproth examined some of the garnet-like crystals from the quicksilver mines of Deux Ponts. Some pure crystals weighing 33$\frac{1}{3}$ grains were introduced into a barometer tube of a larger diameter than usual, and closed at the lower end. This end was placed in sand, within a small crucible; heat was applied, and its intensity gradually increased to the degree of ignition. After cooling, he cut off the lower end from the tube, and found that it contained the silver, which had undergone ignition in its former crystalline form, and weighing 12 grains. On collecting the mercury which had been sublimed in the tube, he obtained 21 grains. Therefore since the deficiency of one-third of a grain may be reckoned as a loss of quicksilver, the following will be the proportion of the parts in 100 of this crystallized amalgam of silver.

Silver,	36
Mercury,	64
	100

Cinnabar.—The analysis of cinnabar may be conducted in the following manner. The ore being reduced to a fine powder, is repeatedly digested in a mixture of 1 part of nitric acid, and 3 of muriatic, moderately diluted, by which every thing in the ore is dissolved excepting the siliceous earth and the sulphur. The residue being washed, dried, and weighed, is subjected to a red heat, and the remaining silex being deducted, the difference of weight shews the amount of the sulphur. The nitro-muriatic solution is next to be decomposed at a boiling heat, by carbonated alkali, and the precipitate obtained being mixed with a little lamp-black, and distilled, the mercury passes over in the metallic form. The residue in the retort consists of magnetic oxide of iron, and any accidental earth excepting silex that is contained in the ore, together with a little charcoal, which may be separated in the usual way.

Hepatic ores.—The hepatic ores of mercury, and such as contain bituminous substances, may be treated in the same way; but these ores are sometimes combined with a little silver, and therefore the matter which remains undissolved in nitro-muriatic acid, may be muriate of silver, as well as sulphur and silex. When the sulphur is burnt off, the residue is to be mixed with twice its weight of pearl-ash, and being strongly ignited in an earthen crucible, diluted muriatic acid is added, by which the alkali and the earth will be taken up, and the

Mercury. the ſilver will remain behind in the form of ſmall metallic grains.

Corneous ore of mercury.—To analyze this ſpecies of mercurial ore, let it be digeſted in a little diſtilled vinegar, by which the native mercury which is diſperſed though the ore will be left behind. Add to the clear ſolution nitrate of barytes, by which the ſulphuric acid will be ſeparated in the ſtate of ſulphate of barytes; and this being removed, drop in nitrate of ſilver, by which the muriatic acid will be ſeparated in the form of muriate of ſilver. The mercury now remains in ſolution in the ſtate of nitrate, and being precipitated by means of iron, it is afterwards waſhed in muriatic acid, and thus appears in the metallic ſtate. It may alſo be reduced to the metallic ſtate by precipitating by carbonated alkali, and diſtilling the precipitate with a little lamp black.

A ſimple and eaſy proceſs is followed in aſſaying the ore of mercury in the dry way. The ore to be examined is firſt to be reduced to powder, and carefully mixed with one-fourth of its weight of quicklime, and an equal portion of iron filings. It is then to be expoſed to a red heat in an iron or earthen retort, as long as any mercury paſſes over into the receiver.

Sect. II. *Of the Reduction of the Ores of Mercury.*

A very ſimple proceſs is followed for reducing the ores of mercury. The following is the method practiſed at the celebrated mines of Almaden in Spain. The pieces of pure cinnabar are firſt ſelected and ſeparated from the ore, to be ſold to painters and manufacturers of ſealing-wax. The reſt is ſorted into three parts, of which the firſt is the richeſt, and is broken into pieces of a moderate ſize; the ſecond, containing a ſmaller proportion of metal, is broken into ſmaller pieces; and the third conſiſts of the duſt and ſmaller fragments of the other two. Theſe are kneaded up with clay, and being formed into bricks, are carefully dried in the ſun. The furnace which is uſed for extracting the mercury is built in an oblong form, and is divided horizontally by an iron grate, into an upper and lower compartment, and near its top it communicates with a ſeries of aludels. In charging the furnace, a ſtratum of flat rough ſtones is placed on the grate, intervals between each of the ſtones being left for the paſſage of the fire. A bed of ore of the ſecond quality is laid on the ſtratum of ſtones, and then a ſtratum of the ore of the firſt quality, after which another of the ſecond kind, and laſt of all a ſtratum of the third kind, which has been made up into bricks. A few faggots are then thrown into the lower cavity of the furnace, and lighted up; and a gentle fire is to be kept up by occaſionally adding faggots for eight or twelve hours, according to the previous ſtate of the ore with regard to moiſture. After the moiſture is ſeparated, which is known by the vapour ceaſing to be exhaled, the fireplace is filled again with faggots, and by the time they are conſumed, a ſufficient heat will be communicated to the ore, to allow the combuſtion to go on, by means of the ſulphur which it contains, without requiring any more fuel. In the courſe of the next two days, while the ſulphur burns ſlowly away, the mercury riſes in the ſtate of vapour, and paſſes into the aludels, where it is condenſed. When the whole of the metal is extracted, the ſcoria is taken out of the furnace, and the aludels are emptied of their contents. But beſides the mercury, they are found to contain a quantity of black matter like ſoot. This matter is eaſily ſeparated by ſpreading the whole about on an inclined table, ſo that the mercury may run to the lower extremity, where it is collected in a channel, and the impure ſooty matter remains behind. Mercury.

The method of extracting mercury from its ores now deſcribed, is advantageous, on account of the ſimplicity of the apparatus, and the ſmaller expence of fuel; but it would appear that a portion of the mercury remaining in the ore is loſt. There is beſides a conſiderable loſs in throwing away the ſoot, after ſeparating the running mercury on the tables, not only becauſe many of the globules of the metal itſelf are thrown away, but alſo the calomel, and cinnabar, which are found to be in conſiderable proportion, are waſted. Hence it has been recommended as a more profitable method, 1. To ſeparate the ſulphate of ammonia, which, according to the examination of Prouſt, forms part of the matter depoſited in the aludels, and then by mixing what remains, with 12 or 15 per cent. of quicklime, diſtill it in an iron retort, by which means the whole of the running mercury would be obtained, as well as that which is produced by the decompoſition of the calomel and cinnabar.

A more improved proceſs is practiſed at the mines of Deux Ponts, and Idria. The ore, as it is brought out of the mine, is carefully ſorted by the hand, and theſe parts that ſeem deſtitute of metal, are rejected. This proceſs, although tedious and expenſive, is found to be more advantageous than the older method of ſeparating the cinnabar by waſhing, in which there is a great loſs of metal. The ore being thus ſorted, it is reduced to powder, and accurately mixed with one-fifth of quicklime, which has fallen to powder by expoſing it to the air; but it ought to be obſerved that the quantity of quicklime is to be regulated by the proportion of cinnabar contained in the ore. The mixture being thus prepared, is introduced into iron retorts, which are capable of holding about 60lbs. weight. The retorts to the number of 40 or 50, are fixed in a long furnace, and a glaſs receiver is attached to each, but it is not luted. A moderate heat is then applied for the purpoſe of driving off the whole of the moiſture; and when this is done, the joinings of the veſſels are to be cloſely ſtopt with tempered clay, and a full red heat is to be applied, and continued for ſeven or eight hours, at the end of which time the whole of the mercury will be volatilized, and condenſed in the receiver. By this proceſs it is found, that 100lbs of the ore yield from 6 oz. to 10 oz. of metal.

Chap. IV. *Of the Ores of Silver.*

The ores of ſilver preſent a conſiderable variety. Sometimes it is found in the metallic ſtate in maſſes of from 30lbs. to 40lbs. weight, but it is oftener combined with ſulphur in the ſtate of ſulphuret; with other metals, eſpecially antimony, arſenic, iron, copper, lead, and biſmuth; or with acids, as the carbonic and the muriatic, forming the carbonate and muriate of ſilver. The analyſis and reduction of theſe different ores, it is ſcarcely neceſſary to obſerve, muſt be conducted according to the

Silver. the nature and proportion of the ingredients which enter into the compoſition of the ore to be examined or reduced.

Sect. I. *Of the Analyſis of the Ores of Silver.*

When a ſilver ore is to be examined, and the only object in view is to aſcertain the proportion of ſilver it contains, the operation is uſually conducted in the dry way. The ore is firſt roaſted and reduced to powder; it is then mixed with litharge in proportion to the earthy mater combined with the ore, and quickly vitrified. The maſs thus obtained is again reduced to powder, and being mixed with black flux, is to be fuſed in a crucible, with a ſufficient degree of heat. By this proceſs the lead of the litharge is revived, and collected at the bottom of the crucible, carrying with it the whole of the ſilver, as well as ſome of the other metals which may be combined with the ore. The button thus obtained is to be ſubjected to the proceſs of cupellation, with the requiſite quantity of pure lead, and in this way the baſe metals are ſcorified, and the ſilver remains behind in a ſtate of purity, or combined only with the gold, which many of the ores of ſilver contain in ſmall proportion. The gold is to be ſeparated by ſome of the methods which we have already deſcribed, in treating of the ores of gold. This operation, in which the object only is to aſcertain, as in this caſe, the quantity of ſilver, is called *aſſaying*. In the examination of ores in this view, more aſſays than one ſhould always be performed, that an accurate and nearly invariable reſult may be obtained.

But in examining metallic ores, it is always more ſatisfactory to aſcertain the whole of the ingredients of which they are compoſed. We ſhall therefore proceed to give an account of the beſt conducted analyſis of the ores of ſilver.

Corneous ſilver ore.—The following is the analyſis of this ore by Klaproth.

" Upon 200 grains of the corneous ſilver ore I poured three times their weight of pure nitric acid; but no action took place, either in the cold or in the heat of boiling; only a ſubtle brown red iron-ochre was ſeparated, which, being waſhed off from the remaining ore, and dried, amounted to four grains. Cauſtic ammonia, added to the nitric acid employed, precipitated five grains more of iron. When it was afterwards mixed with muriatic acid, only a pale milky colour was produced, but no real corneous ſilver ore depoſited. It followed from this, that neither any free native ſilver, nor any portion of it mineralized by ſulphur, had been contained in that ore. The horn-ſilver, after treatment with nitric acid, was reduced by twice its weight of ſalt of tartar, and yielded 133 grains of reguline ſilver.

" 1. For the purpoſe of finding out, more accurately, its conſtituent parts, I mixed 200 grains with 600 grains of the pureſt alkali prepared from tartar, and brought the mixture into the ſtate of fuſion in a glaſs retort, applying the neceſſary degree of heat. After refrigeration, I broke off the upper half of the retort, ſoftened the fuſed maſs, which was of a light-brown colour, with hot diſtilled water, filtered the whole, and edulcorated the reſidue.

" 2. This reſidue was then diſſolved in nitric acid. The ſolution acquired a brown tinge, and the ſcum floating upon the liquor aſſumed the colour of bricks. When the argenteous parts were completely diſſolved, there remained $8\frac{1}{2}$ grains of a brown-red powder, which imparted a golden yellow colour to the aqua regia, with which it was digeſted, and left a white reſidue behind. This laſt conſiſted of horn-ſilver, mingled with a ſlight portion of the gangue, or matrix of the ore, and afforded, on reduction, two grains more of ſilver. Cauſtic ammonia precipitated from the yellow ſolution ſeven grains of oxyded iron. Silver.

" 3. The nitric ſolution of the ſilver was precipitated by common ſalt; and the muriat of ſilver thus obtained weighed, after reduction by means of ſoda, $134\frac{1}{2}$ grains of reguline ſilver.

" 4. The fluid, left after the ſeparation of the horn-ſilver, had a pale-yellow colour, owing to a portion of iron; which, precipitated by pure ammonia, weighed five grains.

" 5. After this, I proceeded to examine the ſaline maſs, diſſolved in diſtilled water, and ſeparated from the ſilver, after the corneous ore had been fuſed with pure alkali. On ſaturating this maſs with diſtilled vinegar, the ſolution was rendered turbid, and a looſe white earth depoſited, which, collected and dried, amounted to three grains and a half of argillaceous earth.

" 6. The alumina being ſeparated, the ſolution was reduced to a dry ſalt by evaporation, and the alkohol, affuſed upon it, took up the acetite of pot-aſh. The neutral ſalt, which was left behind by this proceſs, and which conſiſted of the mineralizing muriatic acid and the alkali employed, I diſſolved in water, and obtained from it, by repeated evaporation and cryſtallization, $117\frac{1}{2}$ grains of muriat of potaſh.

" 7. In order to learn whether and in what proportion ſulphuric acid, which by ſome writers has been mentioned as one of the conſtituent parts of the corneous ſilver ore, were really preſent in it, I again diſſolved that ſalt in diſtilled water, and dropped into it liquid muriat of barytes. The mixture became turbid, exhibiting that appearance which indicates the preſence of only a ſlight quantity of ſulphuric acid. I continued to add the barytes, until no more turbidneſs appeared. The weight of the precipitate thus obtained was three grains: but, as in theſe three grains of ſulphated barytes the acid cannot properly be eſtimated to be more than half a grain, I think this quantity is too trifling to be conſidered as one of the eſſential conſtituent parts of the corneous ſilver ore. But if that half grain of ſulphuric acid be eſtimated equal to $1\frac{1}{2}$ grain of ſulphur of potaſh, and be ſubtracted from the above $117\frac{1}{2}$ grains of digeſtive ſalt, or muriat of potaſh, there will remain of the latter only 116 grains, in which the concentrated muriatic acid amounts to 42 grains. Therefore,

" One hundred parts of this corneous ore contain

Silver,	67.75
Muriatic acid,	21
Oxide of iron,	6
Alumina,	1.75
Sulphuric acid,	0.25
	96.75."

Red ſilver ore.—The following is the analyſis of this ore, alſo by Klaproth.

" Upon

Silver.

"Upon 500 grains of bright, cryſtalline, red ſilver-ore, moſt finely pulverized, I poured ſix times their quantity of a mixture of equal parts of nitric acid of 1.350 ſpecific gravity and diſtilled water. The phial was kept for ſeveral hours in a low digeſting heat, ſo that the agency of the acid could be but moderate. I then diluted the ſolution with water; cauſed it to boil; and, after the reſiduum had ſubſided to the bottom, I decanted the clear ſolution. Upon the remaining pulverulent ore, a quantity of nitric acid and water, equal to the preceding, was again affuſed; and, in the ſame manner, proceeded with as at firſt. The ore appeared now to have been effectually decompoſed; and for this reaſon the ſolutions, together with the reſiduum, were put on the filter, and the latter properly waſhed.

"The filtered nitric ſolution had no colour at all, having been very much diluted by the water by which the reſidue had been edulcorated. I ſubjected it to evaporation to $\frac{1}{3}$th part, and found the bottom of the evaporating glaſs veſſel, after cooling, covered with copious, finely grained, reſplendent, and heavy cryſtals of a gray white. To aſcertain their nature, I procured, by a ſeparate proceſs, a quantity of a ſolution of the ſame red ſilver-ore, ſufficient for this enquiry, and found that they were ſulphate of ſilver. Being aſſured of this, I diſſolved that ſulphate by a proportionate quantity of water, aſſiſted by heat, added it again to the nitric ſolution, and combined this laſt with muriatic acid, as long as any muriate of ſilver would precipitate; which, when collected, edulcorated, and dried, was found to weigh 391$\frac{1}{2}$ grains.

"The fluid, from which the horn-ſilver had been thus ſeparated, was then reduced to a ſmaller bulk, by diſtillation from a retort. This concentrated fluid became turbid, and left another grain of muriated ſilver on the filter. At this time it contained no other foreign ſubſtance, except a conſiderable portion of ſulphuric acid.

"What remained undiſſolved by the nitric acid, conſiſted of an aſh-gray, pretty looſe, or flocculent powder, of 202 grains in weight. When this had been gently digeſted for half an hour, with a mixture of five parts of muriatic acid, mixed with one part of the nitric, and then diluted with half its quantity of water, there remained, after filtering, careful edulcoration, and drying, 65 grains; which were the ſulphureous contents of the ore. When this reſidue had been gently heated, the ſulphur deflagrated, leaving 6$\frac{1}{2}$ grains of muriated ſilver behind. This ſulphur, therefore, conſiſted of 58$\frac{1}{2}$ grains.

"After the filtered ſolution had been evaporated in part, it was poured into a large quantity of water. By management, a white precipitate immediately enſued, which being ſeparated by the filter, edulcorated, and dried, and laſtly heated in a porcelain cup, gave 133 grains in weight. But I could not find the leaſt trace of arſenic in it, though I had ſubjected it to all the trials deemed proper for diſcovering its preſence. On the contrary, it was manifeſt, that this precipitate wholly conſiſted of oxide of antimony, quite of the ſame nature with that which is produced when muriatic ſolutions of antimony are precipitated by water. On expoſing it to heat, a ſmall portion of moiſture ſtill evaporated, attended with a muriatic ſmell, which was hardly perceptible. When again put on a teſt, and mingled with a third part of charcoal duſt, the coaly powder was ſlowly conſumed, by burning, without any arſenical ſmell, and left behind it the metallic oxide, poſſeſſed of a gray colour, and partly blended, partly covered with a quantity of fine, gray-white, ſhining, acicular cryſtals, or the flowers of antimony, as they are called. But when it was fuſed in a covered crucible with tartar and powdered charcoal, it was completely revived into reguline antimony, which being blown off with the bellows, a bead of ſilver was left, weighing half a grain.

Silver.

"The liquor alſo, from which the antimonial oxide was ſeparated, contained free ſulphuric acid. On this account I put it into a retort, together with the nitric acid, from which the ſilver had been precipitated in the ſtate of horn-ſilver, by means of muriatic acid, and continued the diſtillation until, at this temperature, nothing more would paſs over; but, on raiſing the heat, thick white vapours had begun to riſe. The fluid left behind in the retort was found, upon trial, to be concentrated ſulphuric acid. Upon diluting this laſt with water, and ſubſequent affuſion of muriated barytes, the ſulphate of barytes from thence produced, amounted, after edulcoration and deſiccation, to 194 grains.

"Conſequently, the conſtituent parts diſcovered by theſe reſearches, are, ſilver, antimony, ſulphur, and ſulphuric acid *."

* *Eſſays.*

Vitreous ſilver ore.—This has been alſo analyzed by Klaproth, according to the following method.

"1. If ductile vitreous ſilver ore be fuſed upon a piece of charcoal, by the aſſiſtance of the blow-pipe, its ſulphur is quickly volatilized, and a button of pure ſilver remains. But it is otherwiſe with the brittle ore: for the bead left after the evaporation of the ſulphur is brittle, and cannot be purified by the addition of borax. However, if a little nitrate of potaſh be added to the red-hot bead, it will deſtroy the portion of baſer metal which it contains, and then the borate of ſoda cauſes it to yield a pure button of ſilver.

"2. One hundred grains of ore, previouſly levigated, were gently boiled in a ſufficient quantity of nitric acid, diluted with an equal quantity of water. This operation was repeatedly performed, till the black colour of the powdered ore diſappeared, and the inſoluble portion had become of a looſe texture, and had acquired a gray-yellow colour. When filtered and dried, this reſidue weighed 26 grains.

"3. On adding a ſolution of common ſalt to the above filtered ſolution, which had aſſumed a pale-greeniſh colour, a copious precipitate of horn ſilver enſued, which, edulcorated and dried, gave 88$\frac{3}{4}$ grains. Four parts of this afforded three of ſilver, by fuſion with ſoda.

"4. The remaining ſolution was next combined with ſulphate of ſoda; but neither any turbidneſs, nor any indication of the preſence of lead, appeared. Upon this, cauſtic ammonia was affuſed to exceſs; and the gray precipitate, which then fell down, and which the volatile alkali could not again render ſoluble, weighed five grains. Urged by heat, it melted into a conſiſtence like pap, at the ſame time that a weak arſenical ſmell was perceived. After this precipitate had been once more diſſolved in nitric acid, the addition of ſoda cauſed it to yield a whitiſh yellow, alkaline ſulphuret a dirty brown, and Pruſſian alkali a deep blue precipitate, liable to the attraction of the loadſtone, after ignition. Therefore, it conſiſted of iron, with a ſlight trace of arſenic.

5. The

Silver. "5. The proportion of copper, indicated by a blue colour, in conſequence of the addition of ammonia, and which ſtill remained in the ſolution, was but ſlight. For, after the ſolution had been ſaturated with ſulphuric acid, poliſhed iron immerſed in it, was inveſted with ſo ſlight a coppery cruſt, that no copper to any amount could be collected.

"6. Thoſe 26 grains, which continued inſoluble in the nitric acid (2.), were digeſted in nitro-muriatic acid, till nothing appeared to remain but the mere ſulphur. Its weight amounted to 13 grains; but, after deflagration, it left behind it about one grain of quartzoſe matter of the mine.

"7. From this it is obvious, that 13 grains, or one-half of the above 26 grains, were held in ſolution by the nitro-muriatic acid; and theſe were precipitated entirely in the form of a white powder, upon the affuſion of 20 parts of water. When ignited, this precipitate aſſumed a yellowiſh colour; but there was nothing, either of arſenic, or any other volatile ſubſtance, perceivable. By combination with ſoda, it became reduced to pure reguline antimony; which, as ſuch, admitted of being blown off without leaving any reſidue, in its uſual form of a thick white ſmoke, adhering to the contiguous bodies in the form of needle-ſhaped flowers (oxide) of antimony. Thoſe 13 grains of oxided antimony are equivalent to ten grains of that matter in the reguline ſtate *."

* *Eſſays.*

For the analyſis of ſome of the other ores of ſilver, we muſt refer our readers to the ingenious and elaborate Eſſays of the ſagacious Klaproth, from which we have extracted what is given above on this ſubject.

Sect. II. *Reduction of the Ores of Silver.*

Although the ores of ſilver contain a larger proportion of extraneous matters than the ores of ſome other metals, the value of that metal being greater than that of many others, admits of greater expence in the proceſſes employed for their reduction. The ores of ſilver are reduced, either by fuſion, or amalgamation.

Reduction of ſilver ores by fuſion.—Native ſulphuret of lead, or galena, commonly contains a portion of ſilver, and often in ſuch quantity, as to make its ſeparation from the lead a profitable undertaking. The proportion of ſilver contained in lead is very variable. The greateſt produce of ſilver which we have heard of, was got from the lead ore of Craven in Yorkſhire, which amounted to 230 ounces of ſilver in the ton of lead. The mines of Cardiganſhire yielded formerly 80 ounces per ton; the Durham and Weſtmoreland mines afford lead, from which 17 ounces of ſilver are obtained upon an average per ton. The lead procured from the mines of Iſlay, one of the Weſtern iſlands of Scotland, yielded, we have been informed, 40 ounces per ton; and the average produce of lead at the refinery at Poullaouen, in Brittany in France, is above 39 ounces of ſilver per ton. The following is the proceſs carried on at the latter eſtabliſhment, for ſeparating the ſilver from the lead.

After the lead has been extracted from the ore, the object of the refiner is to obtain the ſilver in a ſeparate ſtate, which is diſperſed through the maſs of lead. This is performed by the proceſs of cupellation on a large ſcale, or refining, as it is uſually termed. The floor of the reverberatory furnace, in which the proceſs is conducted, is horizontal, and it is lined with wood aſhes and ſand mixed together, and well beaten, and formed into a ſhallow baſon, which is the cupel. There is an aperture at one ſide of the cupel, which forms a right angle with the flue by which the flame from the fire-place paſſes into the cavity of the furnace. Through this aperture the lead, brought to the ſtate of litharge, runs; and oppoſite to it there is another aperture by which a blaſt of air is admitted. The top of the furnace has a circular aperture directly above, and correſponds in extent with the cupel, which may be ſhut up with a frame work of iron filled with bricks. When the furnace is ready, the cupel is lined with hay, and is then charged with about 177 quintals of lead, in bars or pigs, through the circular aperture, and the cover being put on, the fire is lighted up. In the courſe of ſix hours, the whole of the lead being melted, and brought to a red heat, a blaſt of air is directed upon the ſurface of the lead, and the aſhes of the hay, and other impurities are removed with a wooden rake. The blaſt being continued for half an hour and more, the ſurface of the lead begins to be covered with a thick cruſt of oxide, which is ſcraped off, and is ſoon ſucceeded by another, but it is not till the ſurface has been cleared five or ſix times, that the true litharge appears. When this is the caſe, the temperature is raiſed to a cherry red, and by the action of the blaſt, with the occaſional aid of the workman, the litharge flows out through the aperture mentioned above. The intenſe heat volatilizes a conſiderable portion of lead, and ſo fills the interior of the furnace with vapours, that a perſon of experience only can diſcover what is going on in the cupel. At the end of 38 or 40 hours from the time that the fire is lighted, the contents of the cupel are reduced to about ſix quintals, and the litharge which comes over at this time is kept ſeparate, becauſe it contains a ſmall portion of ſilver. At laſt the litharge ceaſes to flow, and the ſurface of the melted metal appears covered only by a thin pellicle. It then becomes gradually convex at the edges; the pellicle breaks up, and the ſurface of the metal appears quite bright. The blaſt is now to be turned off, the fire damped, and an aperture in the furnace, previouſly ſtopped with clay, is opened to admit a tin plate tube, through which a ſtream of water is poured into the cupel, in order to cool the metal rapidly, that it may be prevented from ſpirting, which would be the caſe, if this precaution were not obſerved at the moment of congelation. But the ſilver thus obtained is ſtill contaminated with a portion of lead, from which it is freed by a ſecond cupellation, which is performed in a moveable cupel containing about 700 or 800 ounces, and is placed in a ſmall reverberatory furnace, which being heated about three hours, is charged with ſilver of the firſt cupellation. After the fuſion of the ſilver, a proper working heat is kept up for four or five hours, when the refining is uſually completed. The loſs of lead by volatilization during the refining proceſs is eſtimated at about eight per cent. When the quantity of litharge produced is large, it is reconverted into lead, by being returned into the reverberatory furnace, and treated in the ſame manner as the ore. This forms lead of the beſt and ſofteſt quality, becauſe it is in a ſtate of the greateſt purity. And beſides, the ſcoriæ that remain after the reduction of the ore, and the litharge, along

Silver.

Silver. along with the old cupels, and the metallic foot which is depoſited in the chimney of the furnace, are treated in a common blaſt furnace, and a conſiderable portion of lead is thus obtained.

A different practice is followed in the Engliſh refineries. A common reverberatory furnace, having the area perforated with a large oval hole to receive the cupel, is employed. The cupel is formed of ſix parts of well burnt bone aſhes, and one of good fern aſhes mixed together, and moiſtened to a proper conſiſtence. A quantity of this mixture is ſtrewed to the depth of about two inches in an iron frame, which conſiſts of a raiſed elliptical rim, with five broad bars rivetted to its bottom, ſo as to occupy nearly one-half of its area. The aſhes are rammed down very cloſe with a wooden beater, and particularly within the bars of the frame, as it is laid on a flat floor. More aſhes are then added, and beaten carefully in, till the frame is quite full. By means of a ſharp-edged ſpade, five inches ſquare, a cavity is formed in the teſt for containing the melted metal, and at one end of the frame a ſemi-elliptical hole is cut through the breaſt, which latter is to be left of ſufficient ſolidity and thickneſs. The teſt is now to be turned on its ſide, and dreſſed from all ſuperfluous aſhes adhering to the bottom, taking care that none ſhall be left flush with the bottom of the frame or croſs bars, otherwiſe the teſt might be bulged, by fixing it at the bottom of the furnace. The rim being plaſtered with clay or moiſtened aſhes, the teſt is placed upon the ſupporting croſs bars, and fixed firmly with wedges againſt the bottom of the furnace, the breaſt being next to the feeding hole. A moderate heat is now applied, and gradually increaſed till the teſt be red hot; and when it ceaſes to emit ſteam from the under ſide, it is ſufficiently dry. This previous preparation being completed, the following is the method of operation as it is deſcribed by Mr Sadler *.

* *Nichol. Journ.* xxv. 3.

"Lead previouſly melted in an iron pot is ladled into the teſt until the hollow part be nearly filled, the operator cloſes the feeding aperture, and increaſes the heat of the furnace until the ſurface of the lead is well covered with litharge; he then removes the door from the feeding hole, and with an iron rod, which has one end bent down at right angles about three inches and made flat or chiſſel-ſhaped, ſcrapes the ſmall gutter or channel until the litharge juſt flows into it, the blaſt from a pair of double bellows is then directed from the back part over the ſurface of the teſt, the litharge is urged forward, and flows from the gutter upon the floor of the refinery; the operation now goes forward, gradually adding lead as the eſcape of litharge makes it neceſſary, until the gutter is ſo worn down that the teſt does not contain more than an inch in depth of lead, the blaſt is then taken off, the gutter filled up with moiſtened aſhes, and a freſh one made on the other ſide the breaſt; the teſt is again filled, though not ſo full as at firſt, and the operation carried on until this gutter alſo is worn down and the teſt contain from about 50 to 70 pounds of alloy. This quantity is run into an iron pot, and ſet by until a ſufficient number of pieces have been collected to make it worth while to take off a plate of pure ſilver from them.

"The quantity of alloy left in the working off each teſt muſt depend in a great meaſure upon the quantity of ſilver which by eſtimation it is ſuppoſed to contain. A ſufficient quantity of lead ſhould always be left in the alloy to make it fuſe eaſily in the iron pot. Silver.

"When the teſt is removed from the furnace and broken up, the litharge will be found to have penetrated to an inconſiderable but an equal depth in the aſhes; that part not impregnated with litharge may be pulverized, mixed with freſh aſhes, and again uſed for another teſt.

"The operation of taking off the ſilver pure differs in no reſpect from the foregoing, only more care is obſerved in the working, not to ſuffer the eſcape of any metallic particles with the litharge, as that would occaſion conſiderable waſte of ſilver. As the proceſs advances, and the proportion of ſilver to lead increaſes, the litharge aſſumes a darker colour, a greater heat becomes neceſſary, and at laſt the brightning takes place; the interior of the furnace, which during the whole of the proceſs had been very obſcure and miſty, clears up. When the operator obſerves the ſurface of the ſilver to be free from litharge, he removes the blaſt of the bellows, and ſuffers the furnace to cool gradually; as the ſilver cools many protuberances ariſe on the ſurface, and fluid ſilver is ejected from them with conſiderable force, which falling again on the plate, ſpots it very fantaſtically with ſmall globules.

"The latter portions of litharge bring over a conſiderable quantity of ſilver with them; this is generally reduced by itſelf and again refined.

"The litharge as it falls upon the floor of the refinery is occaſionally removed; it is in clots at firſt, but after a ſhort time as it cools it falls for the moſt part like ſlaked lime, and appears in the brilliant ſcales it is met with in commerce: if it is intended as an article for ſale, nothing more is neceſſary than to ſift it from the clots which have not fallen and pack it in barrels.

"If, on the contrary, it is intended to be manufactured into pure lead, it is placed in a reverberatory furnace, mixed with clean ſmall-coal, and expoſed to a heat juſt ſufficient to fuſe the litharge. The metal as it is reduced flows through an aperture into an iron pot, and is caſt into pigs for ſale. During the reducing, care is taken to keep the whole ſurface of the litharge in the furnace covered with ſmall-coal.

"In ſome ſmelt works, inſtead of a reverberatory furnace for reducing, a blaſt furnace is made uſe of, on account of the greater produce, but the lead ſo reduced is never ſo pure as that made in the wind furnace. The oxides of the metals, which require a greater heat to reduce than the lead, are in the blaſt furnace generally reduced with it.

"The volatile oxides, as zinc, antimony, and arſenic, are moſtly carried off by evaporation during refining; a conſiderable portion of the oxide of lead itſelf is carried off by evaporation, making the interior of the furnace ſo miſty and obſcure that a perſon unuſed to refining cannot ſee more than a few inches into it.

"A conſiderable portion of theſe oxides is driven by the blaſt of the bellows through the feeding aperture, and would be diſſipated in the refining-houſe, to the great injury of the workmen's healths; to prevent their ill effects, the arch or dome over the feeding hole is erected to carry the fume into the ſtack of the furnace."

We ſhall now deſcribe the method of treating the

Silver. proper ores of ſilver, as it is conducted by Schreiber at Allemont in France. Theſe ores are native ſilver, and the ſulphuret of ſilver mixed with arſenical cobalt, pyrites, iron ochre, clay, calcareous ſpar, and ſome other earthy minerals. The ſilver being diſperſed in very minute grains through the gangue, cannot be ſeparated from the ſtony parts by waſhing. After the ore is picked by the hand, it is pounded dry in the ſtamping mill, and is reduced to the conſiſtence of coarſe ſand. Roaſting, previous to fuſion is not required; but the ore being refractory, it is found neceſſary to employ a flux compoſed of quicklime, ſcoriæ from a preceding fuſion, and ſlag from the iron forges. To ſupply the proper quantity of lead, powdered galena, with the litharge and ſcoriæ furniſhed by the refinery, and with old cupels ground to powder, is added to the ore, in ſuch proportions that the lead, which is obtained by the fuſion, may contain two per cent. of ſilver, allowing 20 per cent. at leaſt of the lead to be loſt by evaporation, or combining with the ſcoriæ. After being properly mixed, the materials are ſubjected to the heat of a powerful blaſt furnace, with alternate charges of charcoal. The products of the fuſion are lead combined with ſilver, a black, compact, ſulphureous, ſemi-metallic ſubſtance which is called *matt*, and ſome ſcoriæ. The ſcoriæ thus obtained is neglected, excepting a certain proportion, which is reſerved as a flux for the next parcel of ore. But the matt, which is tolerably rich in ſilver, is again melted with litharge, and the lead carries with it almoſt the whole of the ſilver; and although this ſecond matt contain a portion of ſilver, it is not found worth while to ſubject it to a ſecond fuſion. After refining the lead procured by theſe operations, it is found to yield about two per cent. of ſilver. The proceſs of cupellation is performed at a higher heat than uſual, which it is ſuppoſed is neceſſary by the preſence of a ſmall portion of iron; but the conſequence of employing this high temperature is to increaſe the waſte of the metal by evaporation; for inſtead of ſeven or eight per cent. it amounts to no leſs than 20 per cent. And as every pound avoirdupois of the lead thus volatilized, contains from ſix to ten grains of ſilver, the loſs in this proceſs is very great. Perhaps it might be diminiſhed by mixing a larger proportion of lead with the ſilver ore.

But other ſilver ores afford both lead and copper, and in this caſe a more complicated operation becomes requiſite. In the firſt part of the proceſs the pooreſt kinds of ſilver ore, or ſuch as contain but a ſmall proportion of copper and lead, and a great deal of ſtony matter, are to be mixed with the poorer pyritical ores, or ſuch as contain little ſilver and copper, and a great deal of ſulphur and iron. A portion of ſcoriæ obtained from a former proceſs, and containing the oxides of lead and copper, with ſome ſilver, is added to this mixture by way of flux. The materials thus prepared being expoſed to heat in a blaſt furnace, react on each other, and enter into fuſion. The ſtony matter is diſſolved, and the melted maſs ſeparates into two diſtinct parts, of which the heavieſt occupying the bottom of the furnace, forms about one-fourth of the whole maſs. This is called *matt*, and contains all the ſilver, with the greater part of the copper, moſt of the lead, iron, and ſulphur, and generally zinc and arſenic. The ſlag which ſwims on the ſurface, as being the lighter portion, conſiſts of the greater part of the ſulphur, oxide of iron, and earthy matters; the ſmall proportion of lead and copper is not worth the trouble of extraction. Silver.

To drive off part of the ſulphur and other volatile impurities, the crude matt obtained in the preceding operation is roaſted, and being mixed with one and a half times its weight of a richer kind of ſilver ore, and twice its weight of lead ſcoriæ, by way of flux, it is again fuſed, and thus a rich matt is procured, which may contain from nine to ten pounds of lead, from three to four pounds of copper, and from ſix to ſeven ounces of ſilver in the quintal, beſides a quantity of ſcoriæ which holds a little ſilver, and which may therefore be ſucceſsfully employed as a flux in ſubſequent fuſions. This rich matt being roaſted, is mixed with half its weight of litharge and ſcoriæ in equal proportions, and again ſubjected to fuſion. The product of this fuſion is a quantity of metallic lead, containing from ſix to eight ounces of ſilver in the quintal; a ſimilar quantity of copper matt, which contains from 30 to 40 pounds of copper, and about four ounces of ſilver in the quintal; and laſtly a quantity of ſcoriæ, which contains from ſix to 10 pounds of lead, and about 40 grains of ſilver in the quintal.

The copper matt of the above operation is next roaſted, and fuſed with a quantity of lead and copper ſcoriæ, and the product obtained is black copper, which contains from 60 to 80 pounds of copper, and from five to ten ounces of ſilver in the quintal. This black copper being melted with litharge and ſcoriæ, the moſt part of the ſilver combines with the lead, and after one or two fuſions, the copper is entirely freed, not only from the lead and ſilver, but alſo from the ſulphur, iron, and other impurities.

Liquation.—The affinity between lead and ſilver is much ſtronger than the affinity between lead and copper. In conſequence of this affinity, lead and ſilver are eaſily ſeparated from copper, by being expoſed to a moderate heat. This proceſs is called *liquation* or *eliquation*. When the black unrefined copper, or copper matt, contains the proper proportion of ſilver for this operation, it is firſt fuſed with lead or litharge, or with a mixture of the two, and an alloy conſiſting of copper, lead, and ſilver, is thus obtained. This is caſt into moulds, ſo that the metallic product ſhall be in the form of round maſſes or loaves, which being ſet in a furnace on an inclined plane of iron, with a ſmall channel grooved out, are expoſed to a moderate red heat. By this proceſs the lead melts, or, as it were, ſweats out of the loaf, and carrying the ſilver along with it, on account of its ſtronger affinity for this metal, runs down the groove, while the copper remains behind as a dark red ſpongy maſs. The lead containing the ſilver being ſubjected to the proceſs of cupellation, the latter is obtained ſeparate. But, in adopting this proceſs, the proportion of the three metals muſt be attended to. The lead ſhould not be more than four times the weight of the copper, otherwiſe the alloy becomes ſo fuſible, that part of the copper will be melted and carried along with the lead and ſilver; or, if too great a degree of heat is applied, the whole loaf of liquation will be fuſed, and the proceſs muſt again be repeated. The proportion of lead ſhould at leaſt be $2\frac{1}{2}$ times the quantity of copper, otherwiſe a conſiderable proportion of it, and alſo part of the ſilver, will remain in the loaf after heating. But as this proceſs is now more rarely followed,

we

Silver. we ſhall not enter into any farther detail of the particulars connected with it.

Reduction of ſilver ores by amalgamation.—This proceſs, by which ſilver ores are reduced, and which is now pretty generally followed, in different parts of Europe, was firſt practiſed by the Spaniards in South America. The ores which are ſubjected to amalgamation, are ſuch as contain only a ſmall quantity of lead or copper; but it is of ſome importance that there ſhould be a certain proportion of iron pyrites, and if this proportion be not naturally mixed with the ore, it is a good practice to ſupply the deficiency, by adding what is wanting to the dreſſed ore, ſo that the pyritical contents may, as nearly as poſſible, be in a certain proportion to the quantity of ſilver, which is to be aſcertained by previouſly aſſaying a portion of the ore.

The ore being reduced to the conſiſtence of coarſe ſand, is carefully mixed with common ſalt, in the proportion of eight or nine per cent. when the ſilver in the ore amounts to eight ounces per quintal; and when the latter amounts to 32 ounces, or even a greater proportion, from 10 to 12 per cent. of ſalt is to be added. The next proceſs is roaſting the ore, in which about three quintals are ſpread on the floor of a reverberatory furnace, and ſubjected to a moderate red heat. During the roaſting the ore is to be turned twice or thrice, that every part of it may be equally expoſed to the heat. The firſt charge being withdrawn, an experienced workman knows by its appearance whether the proportion of ſalt be too little or too much, and, as may be required, more ſalt or ore is added to the unroaſted parcel. When the whole of the ore is roaſted, it is ground in a mill, paſſed through ſieves, by which it is made as fine as meal, and is then prepared for the proper proceſs of amalgamation. This is performed in the following manner. A number of ſmall barrels, which are made to revolve rapidly on their axes by means of machinery, or fixed tubs, either open or covered, having in the centre of each an inſtrument reſembling a chocolate mill, which may be turned rapidly by ſimilar machinery. The tubs or barrels are filled about one-third with water, and afterwards a ſufficient quantity of roaſted ore and mercury, in nearly equal proportions, is introduced, ſo that the whole may be of the conſiſtence of thin mud. The machinery is put in motion, and continued without interruption for 30 or 48 hours, according to the nature of the ore, when the amalgamation is completed. About a quarter of an hour after the agitation of the matter in the barrels has ceaſed, the greater part of it falls to the bottom, and is withdrawn by opening a hole made for the purpoſe. The earthy reſidue is carefully waſhed by ſmall portions at a time, and thus a good deal of the amalgam which, from being very minutely divided, could not ſink through and mix with the reſt, is recovered. The earth, however, if originally rich in ſilver, ſtill retains a ſmall proportion. It is therefore dried, and being mixed with about 3 per cent. of ſalt, is again roaſted; but at a higher temperature than at firſt, and the proceſs of amalgamation being again repeated, the whole of the ſilver is extracted. The fluid amalgam is ſtrained through a cloſely woven bag, and is thus ſeparated into nearly pure mercury and a ſtiff amalgam; and the latter being ſubjected to diſtillation, the mercury is driven over, and the ſilver remains behind. The copper, which is combined with the ſilver, is ſeparated by cupellation. Silver.

The proceſs of amalgamation is thus explained. The greater part of the ſulphur of the ſilver and pyrites is, by roaſting, burnt off, and converted into ſulphurous acid, which latter, as ſoon as it is formed, and aſſiſted alſo by the affinity of the ſilver for muriatic acid, decompoſes the common ſalt, forming a ſulphate or ſulphite of ſoda, while the muriatic acid combining with the ſilver, forms muriate of ſilver. In the amalgamation which follows, the mercury, being in great proportion, decompoſes the muriate of ſilver, and is partly converted into calomel. Hence it appears, that the loſs of mercury, which is ſometimes very conſiderable in this proceſs, ariſes, firſt, from the converſion of part of it into calomel; and, ſecondly, from the extremely minute diviſion of another part, ſo that it is carried off in waſhing the earthy reſidue; but the proportion of the latter depends much on management.

By the following method ſilver may be ſeparated from copper, according to Napione, without the expenſive and complicated proceſs of liquation. The mixed metal is melted; a quantity of ſulphur is ſprinkled over its ſurface, while the whole is ſtirred about with a ſtick by an aſſiſtant, ſo that the ſulphur may combine with the copper into a matt, which floats above the metal, and is to be removed with a pair of tongs, previouſly moiſtening its ſurface with water, to make it ſolid. Another portion of ſulphur is next to be ſtirred in, and the ſecond matt produced is to be removed in the ſame manner. This proceſs being repeated a ſufficient number of times, the greater part of the copper is converted into matt, holding a ſmall proportion of ſilver, while the remaining copper, which retains the moſt of the ſilver, originally diffuſed through the whole maſs, becomes rich enough to be ſent immediately to the refinery. In treating the matt, it is firſt to be reduced to powder, mixed with common ſalt and quicklime, in the proportion of 12 per cent. of each, roaſted for 10 hours, amalgamated as before; and after three ſucceſſive roaſtings and amalgamations, the whole of the ſilver may be extracted.

TABLE of the quantity of Silver introduced into Commerce, taken at an average between the years 1790 *and* 1802.

Old Continent.	Kilogrammes.	
Siberia,	17,500	
Hungary,	20,000	
Auſtrian States,	5000	
Hartz and Heſſe,	5000	
Saxony,	10,000	
Norway,	10,000	
France,	5000	
		72,500
New Continent.		
North America,	600,000	
Spaniſh poſſeſſions in South America,	275,000	
		875,000
	Kilogrammes,	947,500,

or about 2,091,162 lbs. avoirdupois.

CHAP.

Chap. V. *Of the Ores of Copper.*

The ores of copper are very various. This metal is found native, in the ſtate of oxide, in the ſtate of ſulphuret, and in that of ſalt, combined with carbonic, muriatic, phoſphoric, and arſenic acids.

Sect. I. *Of the Analyſis of the Ores of Copper.*

The analyſis of the ores of copper, it is obvious, muſt vary, according to the nature of the ſubſtances with which they are combined; but as a great proportion of the ores of that metal are combined with ſulphur or arſenic, when they are to be treated in the dry way, they are firſt roaſted, for the purpoſe of expelling thoſe ſubſtances. To effect this, the ore is mixed with about one half its bulk of charcoal powder, or fine ſaw-duſt, and then ſubjected to a low red heat, on a flat tile or muffle, on which it ſhould be thinly ſpread. The ſulphur or the arſenic riſes in fumes; and to accelerate the ſeparation of theſe ſubſtances, the mixture ſhould be frequently ſtirred, obſerving at the ſame time not to increaſe the heat to ſuch a degree as to make the ore clot together, which is one of the objects in the uſe of the ſaw-duſt or charcoal. When it appears that the fumes ceaſe to riſe, and the whole of the charcoal is burnt off, the part of the ore remaining is now in the ſtate of oxide, but mixed with a quantity of ſulphur or arſenic, which cannot be entirely ſeparated by roaſting, and with the earthy matters with which the ore was originally combined.

The next object is to reduce the oxides, thus obtained, to the metallic ſtate; and in this proceſs of reduction the oxide is expoſed to a high temperature, in contact with ſome carbonaceous matter, and ſecluded from the air. It has been a common practice to add ſome alkaline matters by way of flux, to promote the fuſion of the extraneous matters combined with the ore; but the experience and obſervation of more enlightened chemiſts have proved, that a portion of the metallic oxide is always diſſolved by ſaline fluxes, ſo that by aſſays in the dry way with ſaline fluxes, a leſs proportion of metal than the ore really contains, is obtained from it. The loſs, according to Klaproth, between the treatment of a copper ore in the dry way, and the ſame ore, in the moiſt way, amounted to no leſs than 9 per cent. To obviate this inconvenience, a flux is employed by ſome, compoſed of fuſible glaſs, into which a large proportion of alkali and ſilica enters, without any metallic matter, or fluor ſpar, lime, and particularly borax. By the latter, a thinner fuſion of the vitrifying mixture, than by an equal quantity of any other ſubſtance, is produced, ſo that a ſmaller proportion of borax than of the alkaline matters anſwers all the purpoſes of a flux; and thus the loſs of the metallic oxide, by ſolution, is leſs.

But in reducing the pure oxides, or the carbonated oxides of copper, the method which is attended with ſcarcely any loſs, is by ſubjecting them in contact with charcoal, in a covered crucible, to an intenſe heat. It is indeed in this way that the reduction of roaſted copper ores is conducted on a large ſcale; but as theſe latter contain ſulphur, arſenic, iron, and other impurities, the proceſs muſt be many times repeated before the copper is brought to a malleable ſtate.

In reducing the ſulphurated ores of copper, a button of metal, of conſiderable purity, may be ſometimes obtained by means of a ſingle operation. The tedious proceſs of roaſting is avoided by adding to the ore two or three times its weight of nitre, and projecting it into a hot crucible. When thrown into the crucible, a deflagration takes place, in which the ſulphur is burnt, and converted into ſulphuric acid, which unites with the potaſh of the decompoſed nitre. The metal being now freed from the ſulphur, is in a ſtate of complete oxidation by the nitric acid, and may be reduced by adding a flux of tartar and pitch, or other ſimilar matters, and applying a ſtrong heat for a ſufficient length of time. But it ſeems to be more adviſable to ſeparate the metallic oxide after deflagration. This may be done by waſhing the mixture, after which the oxide is to be reduced by the proper flux.

In the analyſis of copper ores in the moiſt way, the metal is obtained ſeparate in three ſtates; either in the metallic ſtate, in the ſtate of black oxide, or in that of green carbonate. If a poliſhed piece of iron be introduced into an acid ſolution of copper, it is immediately covered with a coating of ſhining metallic copper, which is owing to a part of the iron being diſſolved by the acid, and a correſponding portion of copper being ſeparated from the ſolution. The whole of the copper may be precipitated in this way, and at laſt the ſolution contains only iron. The precipitate, which is in the form of ragged filaments, may be waſhed, dried, and weighed, ſo that the proportion of the metal in the ore examined may be aſcertained. It may be added, that the precipitation is greatly promoted, by boiling for a ſhort time, eſpecially towards the end of the proceſs, which produces the ſeparation of the laſt portions of the copper; and it ſhould be farther obſerved, that a perfect ſeparation of copper from iron is obtained only when the ſolution is made in ſulphuric or muriatic acid, and not in nitric acid. The method of ſeparating copper from ſilver has been already mentioned. It may be ſeparated from lead, by adding ſulphate of ſoda to the ſolution, by which an inſoluble ſulphate of lead is obtained, and the copper remains behind. To ſeparate copper from antimony, the oxides of copper and antimony are digeſted with nitric acid; the copper is diſſolved, and the antimony is left. By immerſing a piece of metallic tin in the ſolution, copper may be ſeparated from tin; for by this means the copper only is precipitated. Arſenic is ſeparated from copper by diſſolving in nitrous acid, and adding acetate or nitrate of lead, which produces an inſoluble arſeniate of lead, and leaves the copper behind. In caſe there ſhould be an exceſs of lead, the addition of ſulphate of ſoda will throw it down in the form of inſoluble ſulphate. When nickel is combined with copper, it is uſually conjoined with iron. Ammonia precipitates all the three metals; but, when added in exceſs, rediſſolves the nickel and copper. To obtain the latter ſeparate, ſuperſaturate with muriatic acid, and introduce a poliſhed piece of iron, by which the copper is precipitated, and the nickel remains in the ſolution.

To aſcertain the quantity of precipitated copper obtained from the examination of an ore, it is to be waſhed and dried, put into a ſmall crucible, moiſtened with a drop or two of oil, and covered with borax. Thus prepared, it is ſubjected to ſtrong heat for a few minutes,

Copper.

nutes, and a ſolid button of malleable copper is produced, which may be accurately weighed. But if the product of the analyſis be in the ſtate of green carbonate, which is obtained by adding carbonate of potaſh or ſoda to a ſolution of copper, the green precipitate, thus formed, is to be waſhed and dried at the temperature of boiling water. An hundred and eighty parts of this carbonate are equivalent to 100 of metallic copper. The quantity of copper obtained by analyſis may be eſtimated alſo in the ſtate of black oxide. If the green carbonate be boiled for a few moments in cauſtic potaſh, it ſhrinks and becomes a deep browniſh black fine powder, which is a pure oxide of copper in its higheſt ſtate of oxidation. One hundred parts of this oxide, after being well waſhed, and dried in a low red heat, for a minute or two, are conſtantly found to contain 80 parts of pure metallic copper.

We ſhall now give a few examples of the analyſes of particular ores of copper.

Vitreous copper ore, or *ſulphuret of copper from Siberia*.—The following is the mode of analyſis of vitreous copper ore by Klaproth.

" 1. Upon 200 grains of the ore, coarſely powdered, moderately ſtrong nitric acid was affuſed, which attacked and diſſolved them with frothing and extrication of red vapours. The ſolution was clear, and the ſulphur alone in the ore was left behind, floating in the fluid, in gray, looſe flocculi, without any other reſidue; which indicated that no antimony was preſent. The ſulphur collected on the filter was heated in a ſmall crucible to inflammation, and it burned with its peculiar odour, without any trace of arſenic; yet leaving a ſlight portion of oxidated iron and ſiliceous earth.

" 2. The ſolution, which had a pure blue colour, was treated firſt with muriate, and then with ſulphate of ſoda. But none of theſe, nor any other ſalt, rendered it turbid, or produced any other alteration; by which it appears, that this ore contains neither ſilver nor lead.

" 3. To determine, with proper accuracy, the proportion of the conſtituent parts, I repeated the examination in the following manner. Two hundred grains of the powdered ore were combined and heated with muriatic acid, to the degree of boiling. But as this alone manifeſted no action on it, I added nitric acid gradually, by drops, which exerted a ſtrong attack in each inſtance. When the ſolution of the ore had been accompliſhed, I ſeparated the fluid from the ſulphur floating on the ſurface; and digeſted this laſt once more with a freſh quantity of muriatic acid, dropping into it ſome nitric acid, after which I collected it upon the filter. This ſulphur, waſhed and deſiccated, weighed 38½ grs. out of which, after its combuſtion, 1½ grain of ſiliceous earth remained; ſo that the true amount of ſulphur was 37 grains.

" 4. The ſolution exhibited a glaſs-green colour. I divided it into two parts. Into one half poliſhed iron was immerſed, upon which the copper precipitated of a dendritical form, and pure metallic brilliance. It weighed 78½ grains, when waſhed, and immediately deſiccated in a moderate temperature.

" 5. In order to aſcertain the proportion of iron contained in the ore, I combined the other half of the ſolution with cauſtic ammonia added to exceſs of fatura-

Copper.

tion. The precipitated iron remained behind, in the form of a ſubtle brown mud, which, collected on the filter, deſiccated and ignited, weighed three grains. But as the iron is contained in the mixture of the ore, not in this calciform ſtate, but in the reguline, which laſt is to the firſt in the proportion of 3 to 4, theſe three grains of oxidated iron give 2¼ of metallic iron to be added in the computation.

" Therefore, an hundred parts of the Siberian vitreous copper ore conſiſt of,

Copper,	78.50
Iron,	2.25
Sulphur,	18.50
Silex,	0.75
	100.00 *."

* *Eſſays*, i. 541.

Variegated copper ore.—This ore was analyſed by Klaproth, in the following manner.

" 1. One hundred grains of the pulverized ore were ſubjected to gentle digeſtion with nitric acid, whoſe action upon it was but moderate. From the reſidue, the ſulphur was driven out by combuſtion. This reſidue, when a ſecond time digeſted with nitric acid, diſſolved in it, leaving only a ſlight portion of a red oxide of iron. On examining the ſolution, firſt by common ſalt, and then by Glauber ſalt, it continued limpid and unchanged.

" 2. Upon 200 grains of the powdered ore, muriatic acid was affuſed, the mixture heated, and then combined in ſmall portions with nitric acid. The ſolution, which was thus performed, had a brown colour while concentrated; but as ſoon as it was diluted with water, it acquired a green. The remaining ſulphur was gray, tenacious, and ſpongy, and weighed 72 grains when dry. By ſlow combuſtion it left 35 grains, of which, after extraction by muriatic acid, five grains ſtill remained behind. Theſe loſt one grain more of ſulphur by burning, and the remaining four grains diſſolved entirely in muriatic acid. Whence the quantity of ſulphur amounted to 38 grains.

" 3. The muriatic ſolution was divided into two equal parts; and the copper was precipitated from one of them by means of iron. It amounted to 69½ grains.

" 4. The other half was ſuperſaturated with cauſtic ammonia, and the oxide of iron which fell down was collected. This, when moiſtened with linſeed oil, and expoſed to a low red heat, weighed 10 grains; which are equal to 7½ grains of metallic or reguline iron.

" Thus, in 100 parts of this variegated copper ore from Norway were found,

Copper,	69.50
Sulphur,	19.
Iron,	7.50
Oxygen,	4.
	100.00

" In ſupplying the deficiency in the ſum of weights of the copper, iron, and ſulphur, from the hundred, by putting oxygen in the account, I mean to characterize this laſt as a conſtant conſtituent part of variegated copper ore, producing in it thoſe variegated colours: in the ſame manner, as in ſteel, in copper pyrites, and

other

Copper. other metallic ſubſtances, the beginning of their oxidation is indicated by a ſimilar diverſity of colours.

" In the laſt mentioned ſubſtances, however, the changeable colours are only owing to external cauſes; for which reaſon, they preſent themſelves only on the ſurface, when long expoſed to air. On the contrary, the variegated copper ore is penetrated throughout its whole maſs by the oxidating principle. This correſponds with the deficiency of weight to make up the ſum of the fixed conſtituent parts of the ore here analyſed; whereas no ſuch loſs is obſervable in the vitreous copper ore, treated and decompoſed by the ſame method. It is on this account alſo, that the action of the nitric acid is leſs ſtrong, and the diſengagement of nitrous gas is leſs copious, in the variegated than in the vitreous copper ore *."

* *Ibid.* i. 545.

Malachite, or *carbonate of copper*.—Klaproth analyſed a Siberian ore of this ſpecies, according to the following proceſs.

" 1. One thouſand grains of compact reniform malachite, from the Turjin mines, on the Ural, were reduced to powder, and heated to complete redneſs in a ſmall glaſs retort, connected with the pneumatic apparatus. Much carbonic acid gas was diſengaged in this proceſs, to the amount of 252 cubic inches, without reckoning that part which was abſorbed by the water of the apparatus. This gas was entirely abſorbed by lime water, at the ſame time that a proportionate quantity of carbonated or crude calcareous earth was produced. In the intermediate ſmall receiver a moiſture collected, weighing 78 grains, which, upon trial, proved to be pure water.

2. The pulverulent reſidue taken out of the retort appeared of a black colour, and weighed 716 grains. To ſerve for the following experiments, it was divided into four parts, at 179 grains each; and hence correſponding to 250 grains of the rough malachite.

3. One hundred and ſeventy-nine grains of ignited malachite, combined with three times its quantity of black flux, were put into an aſſay crucible, without lining it, and covered with muriated ſoda. In this ſituation it was committed to the fire of the blaſt furnace, and when the coals had become red hot without the action of the bellows, it was kept melting for the ſpace of 20 minutes. After cooling, it was obſerved that, in the broken retort, the whole mixture, under the covering of common ſalt, had run into an uniform, compact, and opaque maſs, of the bright red colour of ordinary ſealing wax, and that no metallic button had been formed.

" It follows from this, that there was not carbone enough preſent to take up entirely the oxygen of the metallic oxide. Therefore the copper has, by means of this ſmall remainder of oxygen ſtill united with it, been brought into the ſtate of red oxide of copper; and, as ſuch, it has diffuſed itſelf uniformly through the alkaline ſalt.

" 4. One hundred and ſeventy-nine grains of ignited malachite were mingled with three times their quantity of black flux, and one-tenth of powdered charcoal. When fuſed in this ſtate, during 20 minutes, under a ſtratum of common ſalt, in an aſſay crucible not lined in the inſide, they afforded a button of reguline copper, which had run well together, and weighed 136½ grains.

" 5. Another 179 grains of ignited malachite, mixed with thrice as many grains of black flux, and one-fifth part of their weight of colophony, and likewiſe fuſed for 20 minutes, under a cover of muriate of ſoda, in a crucible not ſecured by lining, yielded a well-melted button of reguline copper, weighing 138 grains. Copper.

" 6. The remaining 179 grains of ignited malachite were, like the preceding, melted during the time of 20 minutes, under a cover of common ſalt. But the aſſay crucible had previouſly been lined with powdered charcoal, and the malachite mingled with an equal weight of calcined borax, with half its quantity of white glaſs, and one-fourth part of colophony, or boiled turpentine. By this proceſs I obtained, indeed, a well-fuſed button of reguline copper; but with a conſiderable loſs, as it weighed only 105½ grains.

" In order to diſcover more accurately the conſtituent parts of malachite, I performed the following experiments.

" 7. One hundred grains of malachite, reduced to powder by trituration, were diſſolved in nitric acid; which was effected without leaving any reſidue. The ſolution had a bright-blue colour, and was ſaturated to exceſs with cauſtic ammonia; but the precipitate produced was entirely, and without turbidneſs, redilſolved by the exceſs of the alkali. This ſhewed that the malachite here examined was perfectly free from iron, and ſimilar admixtures.

" 8. I combined 100 grains of triturated malachite with a ſufficient quantity of ſulphuric acid, previouſly diluted with five parts of water, and accurately weighed together with the veſſel. After the malachite had been wholly diſſolved, which was effected gradually, and with a moderately ſtrong effervescence, the loſs of weight, occaſioned by the carbonic acid gas that was extricated, was found to conſiſt of 18 grains.

" 9. One hundred grains of the ſame powdered malachite were ignited, at a moderate heat, in a covered crucible. The black reſidue had loſt 29½ grains in weight. If from theſe be ſubtracted 18 grains for the carbonic acid, the remaining 11½ grains of loſs will conſiſt of water.

" 10. And laſtly, 100 grains, which had been diſſolved in diluted ſulphuric acid, and precipitated by zinc, yielded 58 grains of pure copper.

" In conſequence of theſe experiments, the Siberian malachite conſiſts, in the 100, of,

Copper,	58.
Carbonic acid,	18.
Oxygen,	12.50
Water,	11.50
	100.00 *."

* *Ibid.* i. 550.

Muriate of copper.—This ore, when expoſed upon charcoal to the action of the blow-pipe, gave to the flame a blue and green colour; the muriatic acid was ſoon driven off, and a metallic button of pure copper remained.

This ore of copper was examined and analyſed by Klaproth in the following manner. A portion of the ore being reduced to powder, and boiled with water, communicated no colour to the ſolution; and, with the addition of a ſolution of nitrate of ſilver, afforded a ſmall quantity of a white precipitate which blackened

Copper.

in the day light. This experiment ſhews, that the proportion of muriatic acid is too ſmall to give a compound ſoluble in water.

" 1. One hundred grains of the elutriated mineral diſſolved readily and quietly in nitric acid affuſed in the cold. The ſolution poſſeſſed a pure blue colour, and depoſited a little of a brown iron ochre, which, ſeparated by filtering, weighed a grain and a half. It was then diluted with water, and treated with a nitric ſolution of ſilver. The precipitated muriate of ſilver, when edulcorated, dried, and melted at a moderate degree of heat, in a ſilver pan, weighed 64½ grains.

" One hundred parts of metallic ſilver yield by ſuch combination 133 parts of muriated ſilver. But as this metal, to be rendered ſoluble in acids, takes up 12 per cent. of oxygen, theſe muſt be ſubtracted; ſo that of this increaſe of weight by 33 parts, there remain 20½ for the muriatic acid.

" Theſe principles being laid down, the above 64½ grains of muriated ſilver will fix the proportion of the muriatic acid, contained in 100 parts of the ore, very nearly to 10 grains.

" 2. That I might be ſure of having completely ſeparated the muriatic acid from the nitric ſolution of this copper ore, I added the nitrated ſilver in a ſmall degree of exceſs; and this ſilver I afterwards threw down with muriatic acid, and filtered it off. Which done, the copper was precipitated in the metallic ſtate, by means of a piece of poliſhed iron immerſed in the ſolution. It amounted to 57½ grains when collected and carefully dried.

" The copper, however, is contained in the ore as an oxide. In this ſtate its weight is increaſed 25 per cent. by the oxygen; which, for thoſe 57.50 grains of metallic copper, juſt now mentioned, gives, by calculation, 14.38 grains.

" Now, ſince what is yet deficient from the firſt weight of the ore employed is to be conſidered for the greateſt part as its water of cryſtallization, and ſince thoſe 1½ grains of ferruginous ochre do not belong to the compoſition of the ore, the conſtituent parts of the muriated ore of copper may be ſaid to be in the 100 as follows:

Oxide of copper,	73.
Muriatic acid,	10.1
Water of cryſtallization,	16.9
	* 100.0."

* *Eſſays*, ii. 158.

Phoſphate of copper.—The following is the method of analyſis adopted by Klaproth, in the examination of this ore.

" 1. Becauſe this ore is very much intermixed with its quartzoſe matrix, I pulverized a portion of it, previouſly freed as much as poſſible from the ſtony matter, and aſcertained the weight of quartz ſtill united with it, by ſolution in nitric acid. The quartz amounted to 16 parts in 100 of the purified ore.

" On this conſideration, I weighed 116 grains of the powdered ore, and poured nitric acid upon it. The mixture became of itſelf moderately warm. When the ſolution, aſſiſted by a little heat, was thoroughly brought about, and by means of filtration freed from the undiſſolved quartzy matrix, it ſhewed by its pure ſky-blue colour, that it contained no iron.

" 2. After the ſmall portion of the predominant acid had been ſaturated with potaſh, I added to the ſolution diſſolved acetate of lead, until no farther precipitation took place. The precipitate was at firſt drenched for a while with weak acetic acid, then elixiviated with water, and at laſt perfectly dried in a low heat. It weighed 138 grains.

Copper.

" That this precipitate was a combination of lead with phoſphoric acid, of this I had myſelf aſſured by a previous experiment, made with another portion of the ſame foſſil. It exhibited the phenomenon, which is peculiar to phoſphated lead; namely, that under the blow-pipe it runs into a pearl, which in the very moment of fixation, rapidly aſſumes a garnet-like form with ſhining ſurfaces.

" Upon another portion of that precipitate, half its weight of ſulphuric acid, ſufficiently weakened with water, was poured and digeſted with it. The clear fluid, which had been filtered off from the generated ſulphate of lead, and contained free phoſphoric acid, was firſt half ſaturated with ſoda, and upon this perfectly neutralized with ammonia. By cryſtallization, it yielded microcoſmic ſalt, or phoſphate of ſoda and ammonia.

" 3. In order to diſcover the proportion of the phoſphoric acid combined with thoſe 138 grains of the precipitate mentioned before, I proceeded to the following experiment.

" I burned pure phoſphorus under a large glaſs-bell, diſſolved the obtained dry phoſphoric acid in water, paſſed it through the filter, and reduced it by evaporation, in a ſand heat, to a ſmaller volume. When towards the end of this proceſs, flames of phoſphorated hydrogen gas appeared, I added nitric acid by drops till no longer any red vapours were diſengaged.

" Of this perfectly oxygenated unctuous liquid phoſphoric acid, I diluted 100 grains with water, and neutralized the liquor with finely powdered white marble; of which 324 grains were employed. The mixture was evaporated to dryneſs, and the dry maſs kept in a moderate red heat for half an hour. This ignited phoſphate of lime weighed 256½ grains. In the 324 grains of marble employed in this experiment, the portion of lime, or pure calcareous earth, amounts to 178.20 grains, which if ſubtracted from the above 256.50 grains, determine the quantity of the phoſphoric acid ingredient in that calcareous phoſphate to be 78.30 grains.

" From theſe data, taken together, it now was rendered evident, that in thoſe 138 grains of phoſphated lead, which have been produced by the combination of lead with the phoſphoric acid, conſtituting a component principle of the portion of the ore examined,—the concrete phoſphoric acid amounts to 30.95 grains.

" 4. The remaining part of the ſolution, which yet contained the cupreous part of the ore, was firſt treated with ſulphate of ſoda, to ſeparate the ſmall portion of lead it ſtill held diſſolved from a ſlight exceſs of acetated lead added in the proceſs (2.) Which done, it was mixed with a little of uncombined ſulphuric acid, and a piece of poliſhed iron put into it to precipitate the copper, which I found to weigh 54.50 grains. But as this metal is contained in the ore in an oxidated ſtate, which requires 25 per cent. of oxygen; there muſt 68.13 grains be reckoned for the oxide of copper.

Copper.

"One hundred grains of this phoſphated ore of copper, therefore, conſiſt of,

Oxide of copper,	68.13
Phoſphoric acid,	30.95
	*99.08."

* *Ibid.* ii. 162.

Arſeniate of copper, or *needle-ſhaped copper ore.*—This ore was examined by Klaproth, according to the following proceſs.

"1. Under the blow-pipe, upon charcoal, this ore detonates, emits a white arſenical ſmoke, and runs into ſmall reddiſh-gray globules, which, when again fluxed with borax, yield a pure regulus of copper.

"2. A pure, maſſive ſpecimen of this ore, weighing 50 grains, was kept, in a porcelain crucible during 15 minutes, in a moderate red heat. Its figure was not altered by the fire; but its dark olive colour was changed into a bright graſs green, inclining to that of the fiſkin. Its weight was diminiſhed by $1\frac{1}{4}$ grain.

"3. Nitric acid diſſolves it quietly in the cold, and the ſolution poſſeſſes an undefiled blue colour. By the addition of nitrated ſilver, the mixture is not in the leaſt rendered turbid. Acetate of barytes produces a precipitate which entirely diſappears upon dilution with water. The affuſion of diſſolved acetate of lead, forms with this ſolution a white precipitate, which upon the charcoal emits arſenical vapours, and is reduced to metallic lead, when combined with an exceſs of ammonia, the precipitate falling down at firſt, is directly rediſſolved, no cloudineſs left behind, and the deep-blue colour is reſtored to the liquor.

"4. Alſo by the acetic acid this ore is gradually diſſolved. Upon the evaporation of the ſolvent, a dark-green ſalt of a dendritical form remains behind.

"5. One hundred grains of the acicular olive copper ore, which had previouſly been freed, by means of elutriation, from the admixed reddiſh iron ochre, ſoon diſſolved in nitric acid, and without the application of heat. The ſolution, being accurately neutralized with carbonated potaſh, was combined with diſſolved acetate of lead, until all precipitation ceaſed. The obtained precipitate, when edulcorated and dried in a raiſed temperature, weighed $133\frac{1}{2}$ grains.

"6. To be more convinced that this precipitate was an arſeniated lead, I drenched it with water, and digeſted it with half its weight of ſulphuric acid. The liquor ſeparated by filtration, contained uncombined arſenic acid. I neutralized it with ſoda, and treated one part of it with a ſolution of nitrated ſilver. This produced a copious precipitate of arſeniated ſilver, which poſſeſſed the brick-red colour peculiar to it, emitted arſenical vapours upon the charcoal, and was readily reduced to pure ſilver. The remaining part of the ſolution, when mixed with liquid nitrate of iron, afforded the common whitiſh precipitate of arſeniated iron.

"Now in order to aſcertain, by means of a comparative experiment, the proportion of the acid of arſenic combined with the $133\frac{1}{2}$ grains of the above precipitate (1.), I diſſolved in water 100 grains of ſolid arſenical acid, and added to it a ſolution of acetated lead in ſmall portions ſo long as any precipitate would appear. The arſeniated lead then obtained weighed 297 grains after edulcoration and drying in a warm place. Hence it followed, that the quantity of concrete acid of arſenic, combined with theſe $133\frac{1}{2}$ grains of the precipitate, which the acid of arſenic contained in the ore had produced, muſt be eſtimated at 45 grains. Copper.

"And to be more aſſured that all the arſenical acid had been ſeparated from the nitric ſolution of the ore, I added a little more of acetated lead than would have been abſolutely requiſite. This was afterwards again precipitated as ſulphate of lead by adding ſulphated ſoda, and filtered off. To the ſolution, thus freed from the laſt precipitate, I added uncombined ſulphuric acid, and precipitated the copper, now diſengaged from its mineralizing acid, by means of a poliſhed piece of iron, in the metallic ſtate. Thus I obtained of it $40\frac{1}{2}$ grains.

"But ſince in the compoſition of the olive copper ore the copper is contained in the ſtate of an oxide, it yet remained to diſcover the proportion of oxygen. To attain this end, I diſſolved 200 grains of pure copper in nitric acid, diluted the ſolution with a ſufficient quantity of water, and again precipitated the metal with a lixivium of cauſtic potaſh. The precipitate had a light-blue colour; but after the mixture had ſtood a couple of days in a moderately warm place, that blue colour was changed into a brown. When ſeparated by filtration, waſhed with a large quantity of water, and deſiccated in a low heat, this precipitate amounted to 269 grains. Upon ignition it weighed only 250 grains, and appeared in the form of a very ſubtle, fully-black powder.

"Therefore, becauſe according to this experiment, copper acquires an increaſe of 25 per cent. of weight by combining with oxygen, it is obvious, that for the above $40\frac{1}{2}$ grains of metallic copper, we muſt put in the account 50.62 grains of oxidated copper.

"In conſequence of this decompoſition, 100 parts of the olive copper ore contain,

Oxide of copper,	50.62
Acid of arſenic,	45.
Water of cryſtallization,	3.50
	*99.12."

* *Ibid.* ii. 150.

Sect. II. *Of the Reduction of the Ores of Copper.*

The proceſſes employed for the reduction of copper ores in the large way are extremely ſimple. It ſcarcely ever happens, it has been remarked, that the ſame order in conducting the different reducing proceſſes, even in caſes where the quality of the ore is found to be the ſame, is obſerved at two works. The ſame remark, however, might probably be made with regard to other manufactories, where the ſame practical management being long eſtabliſhed, and attended with ordinary ſucceſs, its inconveniences or advantages are rarely inveſtigated, with regard to the abridgement of labour, or the diminution of expence. We ſhall now deſcribe the proceſſes for the reduction of copper ores, which are followed in different places, by which our readers, who are intereſted in the ſubject, will be enabled to appreciate the advantages of each, or to ſuggeſt improvements of which they are ſuſceptible; and with this view, we ſhall deſcribe the operations for reducing copper ores which are followed in Cornwall, and in Angleſea.

Method.

Copper.

Method of reducing copper ores in Cornwall.—The ore is firſt broken to pieces, of the ſize of a hazle nut. This operation is known by the name of *cobling*. The richer pieces of ore are then picked out by the hand. The next operation is roaſting, which is performed in large reverberatory furnaces, 16 feet long, and 14 feet broad. The bottom of the furnace is compoſed of fire bricks, covered with ſand, two feet thick. This ſand becomes a ſemivitrified maſs by the intenſe heat. The height of the chimney is from 40 to 50 feet, the draught of which is ſo ſtrong, that the ſulphur and arſenic, ſeparated during the roaſting, are carried almoſt entirely through it. The ore is introduced through a kind of funnel, and ſpread to the thickneſs of a foot over the bottom of the furnace. The fuel is placed at the anterior part of the furnace, ſo that the flame muſt paſs over the ſurface of the ore as it is directed by the current of air towards the chimney. The ore is roaſted in this furnace with a dull red heat for 12 hours, and is frequently ſtirred with an iron rake, to expoſe freſh ſurfaces to the flame.

The ore being ſufficiently roaſted, is carried to another furnace, nine feet long by ſix wide, where it is expoſed to a fuſing heat, without addition, except that of a little calcareous ſand, when the ſlag does not riſe freely. It is raked out at the end of every four hours, when it is of the conſiſtence of ſoft dough, and is introduced into oblong moulds, a little water being ſprinkled upon it, to make it ſink down. The ſlag being raked off, a freſh quantity of calcined ore is introduced into the furnace, and the copper is tapped off by a hole in its ſide, which had been ſtopped up with wet clay mixed with one-fourth part of new coal, which prevents the clay from becoming ſo hard as to render it difficult to open the hole by means of an iron pick. As the rough copper flows from the furnace, it is conducted by a gutter into a large bucket, ſuſpended by chains in a well, through which a ſtream of water is paſſing. The metal, as it falls into the water, is granulated, without exploſion or danger, and is afterwards taken out by raiſing the bucket.

But in this ſtate the copper is very impure, being quite brittle, and mixed with arſenic and ſulphur, which can only be ſeparated by other proceſſes. For this purpoſe it is again melted, and granulated two or three times. Each time a ſlag is thrown up in the furnace; but as it contains ſome copper, it is not, like the firſt ſlag, rejected, but worked over and over again with new charges of calcined ore. The nature of the ore muſt determine the number of fuſions and granulations. After the granulation, the maſs is melted and caſt into pigs, which have a bliſtered appearance on the ſurface. Theſe are again broken up, and melted and roaſted ſeveral times, by which the metal becomes purer, and is then caſt into iron moulds, after which it is carried to the refining furnace; and being again melted with the addition of ſome charcoal, it is brought to ſuch a degree of purity as to bear the hammer, and be fit for the market. In this way, by repeated calcination and fuſion, the common ores of copper are freed from arſenic, ſulphur, and earthy matters, and brought to the metallic ſtate. Here it is proper to add, that where there is variety of ores, no ſmall degree of judgement is requiſite in ſorting and diſtributing them for the furnace, that the more fuſible ores being mixed with ſuch as are more refractory, will render the poorer ores, by the addition of a portion of the richer, worth the working. Copper.

Method of reducing copper ores in Angleſea.—The ore, which is the ſulphuret of copper, is broken into ſmall pieces, and expoſed to heat in a kiln, which is cloſe covered. A little fire is applied to the maſs of ore in different places, by which the whole is gradually kindled. The kiln is furniſhed with flues, which open into a long, cloſe, pent-houſe gallery, for the purpoſe of collecting the ſulphur, which riſes in the ſtate of vapour to the top of the kiln, paſſes through the flues into the long gallery, where it is ſlowly condenſed, is afterwards taken out, and farther prepared for ſale. The maſs of ore, after it is once kindled, burns of itſelf for about ſix months, and in this time the ſulphur chamber is four times cleared out. The improved ſulphur chambers are conſtructed in the form of lime kilns, having the ore at the bottom, and the ſulphur ſubliming at the top. The richer part of the roaſted ore is exported without being ſubjected to any other preparation, but the pooreſt part is melted on the ſpot, and contains, beſides a great deal of ſulphur, many other impurities. The ſmelting houſes conſiſt of a range of large reverberatory furnaces, having chimneys above 40 feet high, thus producing a very ſtrong current of air. Thirty-one of theſe furnaces are arranged ſide by ſide under the ſame roof. The fuel, which is coal, is burnt on a grate at the anterior part of the furnace, and the flame is carried over the ore placed on the bottom of it, by the draught of air. Twelve hundred weight of roaſted ore is introduced into the furnace, mixed with a ſmall portion of coal duſt. Here the ore is melted, and brought to an impure regulus, and when it is ſufficiently fuſed, it is drawn off into earthen moulds. Each charge of the furnace is worked off in about five hours, and yields about half a hundred weight of rough copper, which after being farther purified, affords about 50 per cent. of pure metal.

In reducing copper ores at Neuſol in Hungary, lead is employed in the refining part of the proceſs. The rough copper is ſpread out on the rough bed of a furnace, and after being ſix hours in fuſion, a quantity of lead, in the proportion of from ſix to eight per cent. of the copper, is thrown in. This immediately begins to vitrify, and form a thick ſcoria, along with the impurities of the copper. The ſcoriæ are ſucceſſively removed, till the whole is ſeparated, and the copper is purified. The ſcoriæ retain a portion of the copper, and are employed in a future operation. The proceſs continues from ten to twelve hours, with fifty quintals of raw copper.

Some of the finer copper ores contain ſuch a proportion of ſilver, as to render it worth while to extract the metal. In the different roaſtings and fuſions which are employed to bring the copper to a ſtate of purity, the ſilver always remains combined with it, ſo that it muſt be ſeparated by another proceſs. The method of ſeparating ſilver from copper has been already deſcribed, in treating of the reduction of the ores of ſilver.

The ſprings which are found in copper mines, or flow from rocks which afford copper ores, are often ſo ſtrongly impregnated with blue vitriol or native ſulphate of copper, as to yield a conſiderable quantity of this metal. It is obtained by the following proceſs. Large, ſquare open pits, are formed of rammed clay, two or

Iron. three feet deep. Into these pits the vitriol water is pumped; a quantity of refuse iron is thrown in, which being allowed to remain for a considerable time, the iron is dissolved by its stronger affinity for the acid, and the copper being separated, is precipitated in the form of brown mud. After the water appears to be exhausted of the copper, the oxide of copper collected at the bottom is raked out, and being dried in the sun, may be reduced in the usual way. This material, which is the richest employed in obtaining metallic copper, yielding fifty per cent. although contaminated with some iron and clay, is rarely smelted, excepting along with the poorer ores, some of which do not afford more than five per cent. of pure metal.

The plates of copper of a fine red colour, usually known by the name of *rosette copper*, are made by a particular management. When the metal is found to be in a state of sufficient purity, the surface while in fusion is well scummed, and allowed to cool till it is just ready to fix. At this time the workman brushes it over with a wet broom, by which the surface is immediately fixed, and a thin plate is separated from the metal below, which is still in a fluid state. The plate thus produced is taken off and thrown into water, where it becomes of a high red colour. The same operation is repeated and continued successively till the whole of the fluid metal is converted into thin irregular plates of the above description.

Chap. VI. *Of the Ores of Iron.*

The ores of iron, which present a considerable variety, are reduced, on account of the refractory nature of this metal, with no small difficulty. The most powerful agents must be employed for this purpose. And as the construction of furnaces is a matter of the greatest importance in the smelting of iron ores, we were led, when treating of that subject, to enter into a pretty full account of the processes themselves; to this account the reader is referred for information on the methods followed in the reduction of these ores. The present chapter therefore will be only occupied in giving an abridged view of their analysis.

Sect. I. *Of the Analysis of Iron Ores.*

Native Iron.—In analysing this ore, it may be dissolved in diluted nitric acid; the lead may be separated by adding sulphate of soda, thus forming an insoluble sulphate of lead; the oxides of iron and copper may be precipitated by means of caustic fixed alkali at a boiling heat; the addition of caustic ammonia will dissolve the copper, and the iron will remain behind.

Pyrites.—Iron pyrites is either magnetical, or is destitute of this property. When the ore is magnetical, it may be either proper magnetical pyrites, or common pyrites with a mixture of magnetic iron, either in the metallic state, or in that of black oxide. If the magnetism be owing to black oxide mixed with common pyrites, no hydrogen gas will be produced by digesting it in muriatic acid; and if metallic iron and pyrites be combined together, the gas obtained will be hydrogen gas: but if the ore examined be magnetic pyrites, the gas evolved by muriatic acid will be sulphurated hydrogen. The following analysis is applicable to both species of pyrites. 1. After reducing the pyrites to a very fine powder, let it be digested in nitric acid of moderate strength, and boiled almost to dryness; then add a fresh portion of acid, and repeat this process till the whole sulphur is converted into sulphuric acid. 2. Pour off the liquor, edulcorate the undissolved residue, and add the washings to the liquor. 3. Add to this carbonate of soda to a slight excess, and separate the precipitate, if any take place. 4. After neutralising the residual liquor by a little nitrous acid, it may be decomposed by muriate of barytes, which is to be added while any precipitate takes place. A hundred parts of this precipitate indicate 14.5 of sulphur in the ore. 5. The insoluble residue (2.) is next to be digested with caustic soda, and being evaporated to dryness and slightly ignited, the precipitate (3.) is to be added, and the whole dissolved in muriatic acid, and boiled nearly to dryness. By the affusion of water the silica will be left in the state of a white insoluble powder. 6. Mix the muriatic solution with ammonia in slight excess, and the alumina and oxide of iron will be precipitated together, leaving the lime, if there should be any, in the solution, from which it may be obtained in the state of carbonate, by a mild alkali. 7. The iron and alumina may be separated by boiling in nitric acid, which leaves the metallic oxide untouched, or by digestion in caustic potash or soda, which produces a similar effect. Iron.

Magnetic Iron Ore, Specular Iron Ore, and Red Iron Ore,—are composed chiefly of oxide of iron, with an accidental quantity of silica and alumina. These ores are with difficulty acted on by acids alone. In conducting the analysis, therefore, 1. The ore is to be reduced to a fine powder, and heated in a silver crucible, with caustic soda in solution. When the whole moisture is evaporated, the remaining matter is to be ignited to a low degree for a few minutes; next dissolve the whole contents of the crucible in diluted muriatic acid; evaporate the solution nearly to dryness, and boil the residue in distilled water, acidulated with a little muriatic acid, and the silica will remain behind undissolved. 2. The solution being considerably reduced by evaporation, add caustic soda to a slight excess, and boil it upon the precipitate which is thus obtained. This precipitate, after being edulcorated, is pure oxide of iron, and being heated with a little wax, it may be brought to the state of magnetic oxide, one hundred parts of which indicate seventy-three of metallic iron. In this way the quantity of iron in the ore may be estimated. 3. The alkaline solution contains the alumina, which may be separated by muriate of ammonia, and after being washed and ignited, its quantity may be ascertained.

Black Iron Ore, and Brown Iron Ore.—Besides the ingredients contained in the former species, these ores are combined with a portion of manganese; the precipitate obtained, therefore, is a mixture of the oxides of iron and manganese. These oxides may be separated by dissolving them in muriatic acid, and adding to the hot solution caustic soda, drop by drop, till the liquor becomes colourless, or till the precipitate thrown down at each addition of the alkali begins to be white. In this way the oxide of iron is precipitated, while that of the manganese remains in solution. The iron being removed, the oxide of manganese may be obtained, by continuing the addition of soda till no farther precipitate is produced. The two oxides may also be separated by adding

succinate

Iron. succinate of ſoda to the muriatic ſolution, by which means the iron is precipitated, and the manganeſe remains in ſolution.

Sparry Iron Ore.—This ore of iron, which is ſuppoſed to contain carbonic acid, the oxides of iron and manganeſe, lime, magneſia and barytes, in the ſtate of carbonate, with a ſmall portion of ſilica and alumina, may be examined according to the following analyſis. 1. Digeſt the ore reduced to very fine powder, in muriatic acid, with a little nitric acid: a ſlight effervescence takes place, and the loſs of weight indicates the quantity of carbonic acid driven off. 2. The inſoluble portion of the ore, after being twice or thrice digeſted in muriatic acid, is ſilica. 3. The muriatic ſolutions and waſhings, being mixed together, are to be concentrated by evaporation, and decompoſed at a boiling heat, by adding cauſtic ſoda in exceſs. 4. Boil the precipitate and ſupernatant fluid together for a ſhort time, the alumina only will be diſſolved. 5. The inſoluble portion is next to be well waſhed and ignited, and being once abſtracted with nitric acid, the lime, barytes, and magneſia, will be diſſolved, leaving behind the oxides of iron and manganeſe. 6. To ſeparate the oxides, digeſt the mixture with a gentle heat in diluted nitric acid, with the addition of a ſmall bit of ſugar; the manganeſe is diſſolved, and the remaining oxide of iron may be brought to the magnetic ſtate, by heating it with wax. 7. The nitrate of manganeſe may be precipitated by carbonate of ſoda, and after waſhing and drying it at a heat below redneſs, pure carbonate of manganeſe is obtained, one hundred parts of which indicate fifty-five of metallic manganeſe. 8. To the nitric ſolution (5.), a good deal diluted with water, add ſulphuric acid as long as any precipitate is formed. The ſulphate of barytes thus obtained being removed, the other earths may be thrown down by means of the carbonate of an alkali; they are again diſſolved in diluted ſulphuric acid, and the ſulphates of lime and magneſia thus produced, being precipitated by alcohol, may be ſeparated from each other by cold water. In this way the ſulphate of magneſia is diſſolved, with only a very inconſiderable quantity of the ſulphate of lime.

Argillaceous iron ore, bog iron ore, blue earthy and green earthy iron ores,—are chiefly compoſed of the oxides of iron and manganeſe, phoſphate of iron, ſilica, alumina, and lime. The analyſis of theſe ores may be conducted according to the following proceſs. 1. After the ore is reduced to powder, and ignited, abſtract it two or three times with nitric acid; pour off the acid, and waſh the reſidue with a ſmall portion of ſtrong nitric acid. 2. Add the acids together, evaporate nearly to dryneſs, waſh the reſidue with cold water; the phoſphate of iron remains behind. 3. Ignite the inſoluble reſidue (1.) with cauſtic ſoda, and ſeparate the ſilica as in a former analyſis, by muriatic acid. 4. Mix the nitric and muriatic liquors, boil them with an exceſs of cauſtic ſoda, and the alumina will be diſſolved, while the metallic oxides and lime are precipitated. 5. After ignition, abſtract the compound precipitate with nitric acid; the lime is now diſſolved, and nothing remains but the oxides of iron and manganeſe, which may be ſeparated according to the preceding analyſis.

Arſeniate of Iron.—This ore is found to contain oxides of iron and copper, with arſenic acid, beſides a portion of ſilica, and ſometimes lime. It was analyſed by Mr Chenevix, according to the following proceſs. Being reduced to powder, and ſubjected to leſs than a red heat, the water of cryſtallization is driven off; the reſidue is next boiled with cauſtic potaſh, and the alkaline ſolution being ſeparated by filtration, is to be neutralized with nitric acid. The addition of nitrate of lead affords a precipitate of arſeniate of lead, one hundred parts of which indicate thirty-three of arſenic acid. Muriatic acid is next to be added to the reſidue, which is inſoluble in potaſh; the iron and copper are thus diſſolved, and the ſilica remains behind. By ſuperſaturating the muriatic ſolution with ammonia, the oxide of iron will be precipitated, and the oxide of copper will remain in ſolution by the alkali. Iron.

But, for practical purpoſes, we ſhall give a ſhort view of the ſimpler methods of aſſaying the ores of iron, which are chiefly employed in manufacture, with the view of aſcertaining the quantity of metal to be obtained from them, when treated in the large way. Among the older metallurgiſts it was uſual to employ active ſaline fluxes in aſſaying the ores of iron; but as the metallic part of the ore can only be brought into fuſion at a very high temperature, the ſame degree of heat effects the vitrification of the earthy matters, when aided by lime and bottle glaſs, ſo that the uſe of borax, or alkaline ſalts, which are more expenſive, may be diſpenſed with.

To aſſay the richer varieties of magnetic iron ore, particularly iron ſand, reduce them to a fine powder, add one twelfth of charcoal, or double the quantity of fine ſaw duſt, and expoſe the mixture in a covered crucible for an hour to the heat of a powerful wind furnace. After this the iron will be found at the bottom of the crucible, in the form of an irregular button, and covered with a ſmall portion of cellular ſcoriæ. This proceſs will be ſufficient where the quantity of earthy matter is ſmall; but as the common magnetic iron ore contains a conſiderable proportion of ſilica, a flux of the following materials may be neceſſary. For every eight parts of ore take eight of bottle glaſs, ſix of limeſtone or chalk, and one of charcoal; mix the whole carefully together with the ore, and expoſe the mixture to heat as in the former caſe. If the operation have ſucceeded, a button of iron will be found at the bottom of the crucible, covered by a compact, vitreous, greeniſh ſlag.

As the ſpecular iron ore generally contains a portion of ſulphur, from the admixture of pyrites, it muſt be roaſted at a moderate red heat, till the ſulphureous odour is no longer perceptible; then to eight parts of the ore, add eight of bottle glaſs, ſix of chalk, and one twelfth of charcoal, and treat the mixture as before. The red, brown, and black iron ores, may be aſſayed in the ſame way.

Sparry iron ore may be aſſayed without roaſting, by reducing it to powder, and placing it in a crucible lined with a mixture of charcoal and clay, and then covering it with about one fourth of its weight of calcined borax.

In aſſaying argillaceous and bog ores of iron, they are firſt to be roaſted, and then mixed with eight parts of bottle glaſs, ſeven of chalk, and one and a half of charcoal, to eight parts of ore, and ſubjected to fuſion in an unlined crucible. It is ſcarcely neceſſary to obſerve, that the proportion of chalk may be diminiſhed in treating

Lead. ing thoſe varieties of ore which contain calcareous earth in conſiderable quantity.

Sect. II. *Of the Reduction of the Ores of Iron.*

In treating of the conſtruction of furnaces, the proper form and management of which are of the utmoſt importance in extracting the metal from the ores of iron, we were led to enter pretty fully into the nature and effects of the ſmelting proceſs, or the method of reducing iron ores. We ſhall not, therefore, reſume the ſubject in this place. See Furnace.

Chap. VII. *Of Lead.*

In the preſent chapter we ſhall firſt give an account of the moſt improved methods of analyſing the ores of lead; and ſecondly, treat of the beſt methods of reducing or ſmelting theſe ores.

Sect. I. *Of the Analyſis of Lead Ores.*

The analyſis of the ores of lead is leſs difficult than that of the other metals of which we have juſt now treated; and when accuracy is wanted, the humid way of analyſis is to be preferred. The method of ſeparating lead from ſilver has been already noticed, as well as that by which it is ſeparated from iron and copper. The ſame proceſs as that employed for ſeparating iron and copper from lead, may be followed with regard to the ſeparation of lead from tin, cobalt, and zinc. We ſhall now give an account of the analyſis of particular lead ores.

Galena, or ſulphuret of lead.—This ſpecies, which is the moſt common ore of lead, was analyſed by Vauquelin, by the following proceſs †. 1. Three hundred parts of the ore reduced to powder, were roaſted, and loſt, during the proceſs, twelve per cent. 2. Three hundred parts of the ſame ore were heated with nitric acid very much diluted; a ſtrong odour of ſulphurated hydrogen was perceived, and the ſolution of the lead being completed and filtered, there remained on the filter pure ſilica, which being heated to redneſs and cooled, weighed fifty grains, or 16.67 parts per cent. 3. The ſolution of lead in nitric acid being decompoſed by means of ſulphate of ſoda, and the ſulphate of lead precipitated being waſhed and dried, weighed 250 grains, or 63.1 of metallic lead per cent. 4. After the ſulphate of lead was ſeparated, ammonia was added, and a precipitate of oxide of iron was obtained, which being ſubjected to a red heat, weighed ten grains, or was equal to 3.33 per cent. 5. Carbonate of potaſh being added to the reſidual liquor, threw down nine grains of carbonate of lime, which is equal to three per cent. The ſulphuret of lead thus analyzed, afforded in one hundred parts,

† *Jour. des Mines*, N° lxviii. p. 157.

Sulphur, -	12.
Silica, - -	16.67
Metallic lead, -	63.1
Oxide of iron, -	3.33
Carbonate of lime, -	3.
Loſs, -	1.9
	100.00

To aſſay galena in the dry way, it is to be mixed after roaſting with three times its weight of black flux, covered with ſalt, and melted. A button of lead will be found at the bottom of the crucible, but the ſilver and other metals which exiſted in the ore, are ſtill combined with the metallic lead. Lead.

Sulphuret of lead, antimony and copper.—An ore of this kind was analyſed by Mr Hatchett, by the following proceſs. Two hundred grains of the ore were heated in a matraſs, with two ounces of muriatic acid, and nitric acid was very ſlowly added, till the whole exhibited a moderate effervescence. Being gently heated for an hour, the ſolution aſſumed a green colour, and a quantity of ſulphur which floated on the ſurface, being collected, digeſted ſeparately with a little muriatic acid, and waſhed and dried, weighed thirty-four grains; and as it burnt entirely away without any reſiduum, in a red earthen cup, it was perfectly pure. The ſolution with the muriatic acid, in which the ſulphur had been waſhed, was firſt boiled, and afterwards mixed with ſix pints of boiling diſtilled water, to which it communicated a milky appearance. It was filtered while hot, and the filter waſhed with another portion of boiling water. The white precipitate, which was oxide of antimony, was dried in a ſand bath, and weighed ſixty-three grains. When the liquor with the waſhings cooled, ſome cryſtals of muriate of lead were depoſited. The liquor was afterwards evaporated nearly to dryneſs, and a few drops of ſulphuric acid were added, to ſeparate the lead which remained in ſolution. The reſidue being again diſſolved in boiling water, was entirely decompoſed by ſulphate of ſoda, and the ſulphate of lead thus obtained being added to the former portion, was waſhed and dried on a ſand bath. It weighed 120 grains.

The liquor, which was now bluiſh green, aſſumed a deep blue colour by the addition of ammonia; a ſmall portion of the oxide of iron was ſeparated, which, when dried and heated with wax, became magnetic, and amounted to 2.4 grains. The liquor, after being evaporated nearly to dryneſs, was boiled with a ſtrong ſolution of potaſh, till it was nearly dry, and the reſidue being waſhed with water, a black oxide of copper remained; which, after being dried, weighed thirty-two grains.

White lead ore, or carbonate of lead.—The white tabular lead ore, from Leadhills in Scotland, was analyſed by Klaproth, according to the following proceſs.

"1. One hundred grains of it, in pure ſpecimens, and previouſly triturated to a powder, were by ſmall portions introduced into a mixture of 200 of nitric acid with 300 grains of water, and put in equilibrium upon the balance. The ore diſſolved readily, and with a ſtrong effervescence, without leaving any reſidue. By the carbonic acid that eſcaped, there was a loſs of 16 grains of weight.

"2. The ſolution, which was clear and colourleſs, was diluted with water, and a cylinder of zinc put into it. After 24 hours, the whole of the lead had ſhot into beautiful metallic laminæ, which collected, waſhed, and both quickly and carefully dried, to the end that no oxidation might take place, afforded 77 grains of lead in the reguline ſtate, which correſpond with 82 grains of oxidated lead.

"Conſequently, the conſtituent parts of this tabular

Lead.

and carbonated white lead ore, bear to each other the following proportion:

Oxide of lead, -	82.
Carbonic acid, - -	16.
Water, - -	2.
	* 100."

* *Essays*, ii. 132.

Green lead ore, or phosphate of lead.—The following is an example of the method of analysing this species of ore, adopted by Klaproth.

"1. An hundred grains of this ore, in very pure specimens, left on solution in dilute nitric acid one half grain of the quartzose matrix behind; which I separated and replaced by an equal quantity of pure ore. The colourless solution, treated with nitrate of silver, yielded 10 grains of muriated silver: which indicates 1.54 of concrete muriatic acid, contained in 100 of the ore.

"2. In the next instance, the ingredient lead was separated by means of sulphuric acid. The collected sulphate of lead, after gentle ignition, weighed 104½ grains; for which 77.10 grains of oxidated lead must be put in the account.

"3. When after this the nitric solution had been freed, by nitrated barytes, from the portion of sulphuric acid added to excess, and subsequently treated with ammonia so far, that the acid still predominated, I continued adding a solution of acetated lead, till no more turbidness was effected. The generated phosphate of lead, when collected and exposed to a gentle red-heat, proved to weigh 85 grains; and consequently, the proportion of the phosphoric acid must have been 19 grains.

"4. The remaining fluid was mixed with muriatic acid, the mixture evaporated to dryness, and extracted with ardent spirit. The residue, after completely evaporating the spirit, was again dissolved in water, and treated with Prussian alkali. A precipitation of prussiated iron ensued, which indicated the amount of oxide of iron 10 grains.

"From the results of this decomposition it follows, that the constituent parts of green lead ore, and their proportion to each other, are:

Oxide of lead -	77.10
Phosphoric acid -	19.
Muriatic acid -	1.54
Oxide of iron - -	0.10
	† 97.74."

† *Ibid.* ii. 125.

Red lead ore, or *chromate of lead.*—In analysing this ore, Vauquelin adopted the following simple process. Equal weights of the ore reduced to fine powder, strong muriatic acid, and distilled water, were digested together at a moderate temperature, and stirred from time to time. The chromate of lead is thus decomposed, and converted, for the most part, to muriate of lead, which is of a white colour. When the acid has ceased to act, pour off the liquor, add fresh muriatic acid, diluted as before with an equal weight of water, and to the amount of about one fourth of the former quantity, and digest till the whole of the orange coloured particles among the white muriate disappear. This liquor is to be added to the former, along with the washings; the whole is to be heated, and placed in a cool place for a few days, that the small portion of muriate of lead which it holds in solution, may be deposited; and this being removed, add very gradually oxide of silver, precipitated from its solution in nitric acid by caustic potash, till the last portions assume a red purple colour. In this way the whole of the muriatic acid is separated, and the liquors contain only chromic acid, which is deposited by slow evaporation in the form of small, prismatic, ruby red crystals. The quantity of muriate of lead, obtained by this process being ascertained, will shew the quantity of metallic lead contained in the ore.

Lead.

Yellow lead ore, or *molybdate of lead.*—Klaproth analysed this ore in the following manner.

"1. A hundred grains of the crystals were carefully freed from the adhering calcareous earth and ochre of iron, and then finely pulverized. They were then dissolved in muriatic acid, assisted by heat, alternately affusing upon them the acid, and a large quantity of water. In this instance a trace of siliceous earth, though scarcely discernible, appeared.

"2. The greatest part of muriate of lead, generated in the process, was deposited in fine needles, even before the solution had completely grown cold. The supernatant clear fluid was then poured off, reduced to a smaller volume by evaporation, and freed from the muriated lead, which still separated. The muriated metal, collected with care, and briskly desiccated, weighed 74½ grains. By dissolving it in hot water, and steeping into the solution a polished piece of iron, the lead precipitated upon this last in fine lamellæ, and in the metallic state.

"3. But in order to find more accurately what proportion this muriated lead might bear to pure oxide of lead, I made the following experiment.

"Two hundred grains of lead, cut into shreds, were dissolved in 300 grains of nitric acid, diluted with 10 ounces of water, and, with the assistance of digestion, in a boiling heat. The solution was then divided into two parts.

"*a.* Into one half I dropped muriatic acid, as long as it produced any turbidness; evaporating afterwards the mixture to the most perfect dryness of the residue. The muriate of lead here produced weighed 133 grains.

"*b.* From the second half of the nitric solution I precipitated the oxide of lead by dissolved caustic potash. This oxide, when edulcorated and briskly dried till it began to turn yellowish, amounted to 115 grains.

"From this it followed that those 74½ grains of muriated lead, obtained from 100 grains of the yellow molybdate of lead (2.), are equal to 64.42 grains of pure oxide of lead.

"4. The concentrated muriatic solution of molybdena, which had a blue colour, was mixed with nitric acid, and lodged in a sand-bath for farther evaporation. Being thus circumstanced, it was again divested of its blue colour, and a yellow oxide of molybdena separated. But when the evaporation had been carried on to complete dryness, I collected and weighed the remaining lemon-yellow oxide of molybdena; and found it amount to 34½ grains.

"Wherefore, one hundred parts of the purest crystals of the yellow lead ore, from Carinthia, contain,

Oxide

Lead.

Oxide of lead	64.42
Oxide of molybdena	34.25
	* 98.67."

* *Ibid.* i. 538.

Sulphate of lead.—This ore of lead was analyſed by Klaproth according to the following proceſs.

" 1. One hundred grains of tabular ſulphate of lead from Wanlockhead, in ſelect pure ſpecimens, loſt 2¼ grains, by being heated in a covered crucible. When finely pulverized and ignited in a platina crucible with 400 grains of carbonate of potaſh, they yielded a brownish-yellow, moderately concrete maſs. Upon this ſubſtance, previouſly triturated, water was affuſed and heat applied to promote the ſolution of the ſoluble parts. As in the caſe of the preceding foſſil, ſo in this an oxide of lead depoſited from the liquor, which, when waſhed, dried and moderately ignited, weighed 70½ grains. Diluted nitric acid took the whole of it up without the aſſiſtance of heat, and afforded a clear ſolution, from which the lead has been precipitated in the reguline ſtate, by means of zinc. The metallic lead, thus obtained, when collected, waſhed and quickly dried, amounted to 65¼ grains.

" 2. In order to aſcertain the quantity of ſulphuric acid contained in the alkaline ſolution, it was combined with nitric acid added to ſuper-ſaturation in ſome degree, and, in the next inſtance, treated with acetate of barytes. By this management ſulphate of barytes was formed and precipitated, to the amount of 76 grains, after being heated to redneſs: which indicates 25¾ grains of concrete ſulphuric acid.

" According to this decompoſition, an hundred parts of this tabular ſulphate of lead conſiſt of,

Oxide of lead	70.50
Sulphuric acid	25.75
Water of cryſtallization	2.25
	† 98.50"

† *Ibid.* ii. 130.

Sect. II. *Of the Reduction of the Ores of Lead.*

Galena is by far the moſt abundant ore of lead, and indeed almoſt the only ore which is ſubjected to the proceſs of reduction. The treatment of this ore of lead in this way is very ſimple. The firſt object in dreſſing the ore, is to ſeparate the extraneous matters or impurities, ſuch as iron pyrites, blende, calcareous ſpar, quartz, &c. The purer part of the ore is broken to pieces about the ſize of a hazle nut, and waſhed from any earthy matters which adhere to it, and then it is ready to be ſmelted. A ton, or a greater quantity of the ore, is ſpread on the floor of a common reverberatory furnace, with a low arch, and with the flame of pit coal it is quickly brought to a red heat; being, during this time, occaſionally ſtirred with iron rakes, to expoſe freſh ſurfaces to the action of the heat. When it begins to aſſume the conſiſtence of paſte, the heat is lowered, and kept at a dull red, till the whole of the ſulphur is nearly driven off; when the heat is increaſed, and the ore brought to perfect fuſion. The maſs conſiſts of two fluids, the upper being a vitreous ſlag, and the lower metallic lead. The fire is now damped, and a few ſpadefuls of quicklime thrown in, by which the ſcoriæ become ſuddenly ſolid, and are removed to the ſide of the furnace. Tin. The tap hole is now opened, and the lead runs into moulds, in which oblong maſſes or pigs, about 60 pounds each, are formed. After the lead has run out of the furnace, the hole is again cloſed, the ſcoriæ are replaced in the bed; and the heat being raiſed to a glowing red, they are ſoon melted. The greater part of the lead ſeparates from the ſlag, and collects in a maſs at the bottom. The ſcoriæ become ſolid with the addition of a little lime, and the lead is let off into the mould. The ſecond ſcoriæ ſtill contain a portion of lead, from ſix to eight per cent.; but as it is not worth the expence of extracting, it is thrown away. It is found that the firſt running of lead is the beſt; the ſecond, which is obtained from the ſcoriæ, being conſiderably harder, on account of a greater proportion of iron combined with it.

The proceſs which is followed, at leaſt in moſt parts of Scotland, is ſomewhat different from that now deſcribed, particularly in the previous preparation of the ore. The maſſes of ore, as it is brought from the mine, being ſeparated from any adhering impurities, are reduced to ſmall pieces, well waſhed, and then pulveriſed. In this ſtate it is ready for the ſmelting proceſs, which till of late was uſually performed in an open furnace.

In ſome mining countries there is a conſiderable proportion of white lead ore mixed with the galena; doubts have been entertained whether it be profitable to retain this ore, even although it contain a large proportion of metal, becauſe in the reverberatory furnace it is vitrified immediately on the application of the heat, and acting as a powerful flux, the whole is brought into fuſion before the ſulphur be entirely ſeparated; ſo that the proportion of ſcoriæ in this caſe is greatly augmented, with very little increaſe in the produce of lead.

Chap. VIII. *Of the Ores of Tin.*

There is no great variety of the ores of tin. It is uſually found in the ſtate of oxide, or in that of ſulphuret, when it is alſo combined with copper, and a ſmall proportion of iron.

Sect. I. *Analyſis of the Ores of Tin.*

Before treating of the analyſis of the ore of tin, we ſhall firſt deſcribe a very ſimple proceſs for aſſaying it. The ore is firſt reduced to the conſiſtence of coarſe ſand, and ſeparated from the ſtony matters by waſhing. If it appear, by ſubjecting a grain or two to the action of the blow-pipe, that it contains arſenic, 200 grains of the ore mixed with a little charcoal, are to be roaſted in a calcining teſt at a low red heat, till the whole of the arſenic is driven off. The reſidue is withdrawn, mixed with a little pitch and fine ſaw-duſt, introduced into a crucible lined with charcoal, and after a cover is luted on, placed in a large furnace, whoſe heat is to be raiſed to a bright red. In about 20 minutes the reduction is completed, the crucible is removed, and a button of metallic tin is found at the bottom, covered with a little ſcoriæ. But if the ore ſhould contain no arſenic, the previous proceſs of roaſting is unneceſſary.

Tin-ſtone.—The beſt method of analyſing the ores of tin, is that contrived by Klaproth, by means of the fixed alkalies, which was conducted according to the following proceſs.

" 1.

Tin.

" 1. One hundred grains of tin-ſtone from Alternon, in Cornwall, previouſly ground to a ſubtle powder, were mixed in a ſilver veſſel with a lixivium containing 600 grains of cauſtic potaſh. This mixture was evaporated to dryneſs in a ſand heat, and then moderately ignited for half an hour. When the gray-white maſs, thus obtained, had been ſoftened while yet warm, with boiling water, it left on the filter 11 grains of an undiſſolved reſidue.

" 2. Theſe 11 grains, again ignited with ſix times their weight of cauſtic potaſh, and diſſolved in boiling water, left now only $1\frac{1}{4}$ grain of a fine yellowiſh-gray powder behind.

" 3. The alkaline ſolution (1. and 2.), which was in ſome degree colourleſs, was ſaturated with muriatic acid. A brilliant white, tender oxide of tin was thrown down, giving to the mixture a milky appearance. This precipitate, re-diſſolved by an additional quantity of muriatic acid, was precipitated afreſh by means of carbonated ſoda. When lixiviated and dried in a gentle heat, it acquired the form of bright yellowiſh tranſparent lumps, having in their fracture a vitreous luſtre.

" 4. This precipitate, being finely powdered, ſoon and entirely diſſolved in muriatic acid, aſſiſted by a gentle heat. Into the colourleſs ſolution, previouſly diluted with from two to three parts of water, I put a ſtick of zinc; and the oxide of tin, thus reduced, gathered around it in delicate dendritic laminæ of a metallic luſtre. Theſe, when collected, waſhed, and fuſed, under a cover of tallow, in a capſule placed upon charcoal, yielded a button of pure metallic tin, weighing 77 grains.

" 5. The above mentioned reſidue of $1\frac{1}{4}$ grain, left by the treatment with cauſtic potaſh (2.), afforded with muriatic acid a yellowiſh ſolution; from which, by means of a little piece of zinc introduced into it, one half grain of tin was ſtill depoſited. Pruſſian alkali, added to the remainder of the ſolution, produced a ſmall portion of a light-blue precipitate; of which, after ſubtracting the oxide of tin now combined with it, hardly one fourth of a grain remained, to be put to the account of the iron contained in the tin-ſtone, here examined.

" In theſe experiments, (excepting only a ſlight indication of ſilex, amounting to about three fourths of a grain), no trace has appeared, either of tungſtenic oxide, which ſome mineralogiſts have ſuppoſed to be one of the conſtituent parts of tin-ſtone, or of any other fixed ſubſtance. Therefore, what is deficient in the ſum, to make up the original weight of the foſſil analyſed, muſt be aſcribed to the loſs of oxygen; and thus the conſtituent parts of pure tin-ſtone from Alternon are to each other in the following proportion:

Tin	77.50
Iron	0.25
Silex	0.75
Oxygen	21.50
	100.00 *."

* *Eſſays*, i. 523.

The analyſis of grained tin ore, or wood tin, may be conducted in the ſame way as the former.

Tin pyrites.—The following is the proceſs which Klaproth adopted in the analyſis of this ſpecies of tin ore.

Tin.

" 1. Two drams of finely triturated tin pyrites were treated with an aqua regia, compoſed of one ounce of muriatic and a half ounce of nitric acid. Within 24 hours the greateſt part of the metallic portion was diſſolved in it, without application of heat; while the ſulphur roſe up, and floated on the ſurface of the menſtruum. After the mixture had been digeſted upon it for ſome time in a low ſand-heat, I diluted it with water, and filtered it. It left 43 grains of ſulphur on the paper, ſtill, however, mixed with metallic particles. When the ſulphur had been gently burnt off on a teſt, there ſtill remained 13 grains; of which eight were diſſolved by nitro-muriatic acid. The remaining part was then ignited with a little wax; upon which the magnet attracted one grain of it.—What remained was part of the ſiliceous matrix, and weighed three grains.

" 2. The ſolution of the metallic portion (1.) was combined with carbonate of potaſh; and the dirty green precipitate, thus obtained, was re-diſſolved in muriatic acid, diluted with three parts of water. Into this fluid a cylinder of pure metallic tin, weighing 217 grains, was immerſed. The reſult was, that the portion of copper contained in the ſolution, depoſited itſelf on the cylinder of tin; at the ſame time that the fluid began to loſe its green colour, from the bottom upwards; until, after the complete precipitation of the copper in the reguline ſtate, it became quite colourleſs.

" 3. The copper thus obtained weighed 44 grains. By briſk digeſtion in nitric acid, it diſſolved, forming a blue tincture, and left one grain of tin behind, in the character of a white oxide. Thus the portion of pure copper conſiſted of 43 grains.

" 4. The cylinder of tin, employed to precipitate the copper, now weighed 128 grains; ſo that 89 grains of it had entered into the muriatic ſolution. From this, by means of a cylinder of zinc, I re-produced the whole of its diſſolved tin, which was looſely depoſited on the zinc in a tender dendritical form. Upon being aſſured, that all the tin had been precipitated, I collected it carefully, lixiviated it cleanly, and ſuffered it to dry. It weighed 130 grains. I made it to melt into grains, having it previouſly mixed with tallow, and under a cover of charcoal duſt, in a ſmall crucible; which done, I ſeparated the powder of the coal by elutriation. Among the waſhed grains of tin, I obſerved ſome black particles of iron, which were attracted by the magnet, and weighed one grain. Deducting this, there remain 129 grains for the weight of the tin. By ſubtracting again from theſe laſt, thoſe 89 grains, which proceeded from the cylinder of tin employed for the precipitation of the copper (2.) there remained 40 grains for the portion of tin contained in the tin pyrites examined. Hence, including that one grain of tin, which had been ſeparated from the ſolution of the copper (3.), the portion of pure tin contained in this ore amounts to 41 grains. An hundred parts yielded,

Sulphur	25
Tin	34
Copper	36
Iron	2
Earthy matters	13
	100 *."

* *Ibid.* i. 527.

Tin.

Sect. II. *Of the Reduction of the Ores of Tin.*

Tin ſtone, or vein tin, as it is called in Cornwall, contains a large proportion of ſtony matters. It is firſt broken by hammers into pieces of the ſize of a hen's egg, when it is ready for the operation of ſtamping, which is performed in the way already deſcribed for the ores of gold, excepting that there are only three ſtampers. A tin plate about a foot ſquare, and pierced with holes to admit a moderate ſized knitting-needle, is inſerted in front of the trough, and that ſurface of the plate with the rough extremities of the holes is on the inſide, by which the holes are prevented from being plugged up with the ore. As the ore is reduced to the proper fineneſs, it paſſes with the water through the holes into the labyrinth, where it is collected, and after being waſhed on a wooden table, when it is ready for roaſting. In this ſtate it has a conſiderable proportion of copper and iron pyrites, and is called black tin. After being calcined at a low red heat for ſeveral hours, in a large reverberatory furnace, the ore comes out of a bright ochrey red colour, owing to the decompoſition and oxidation of ſome of the metallic ſubſtances; but the oxide of tin, when the operation is properly conducted, remains unaltered. The ore is waſhed a ſecond time, to ſeparate the remaining impurities; and the water which is impregnated with ſulphate of copper, is retained and decompoſed by means of old iron.

The reduction of the ore is the next ſtep in the proceſs. Seven cwt. of roaſted ore, with one fifth of its bulk of ſmall coal, are introduced into a reverberatory furnace, which is about ſeven feet long, and $3\frac{1}{2}$ wide. No lime, or indeed flux of any kind is required. A briſk heat is kept up for about ſix hours; the tin ſinking down as it is reduced, and covered with black ſcoriæ. The furnace is now tapt, and the metal flows into a ſhallow pit. When the whole of the metal has run out, the ſcoriæ are removed from the furnace, and a freſh charge is made. The metal in the pit throws up a ſlag, rich in metal, which is immediately returned into the furnace; and after the melted tin has cooled a little, it is taken out with iron ladles, and poured into granite moulds. Each charge affords on an average from four to five cwt. of metal; but as the firſt ſcoriæ are not entirely free from metal, they are again ſtamped and waſhed, and mixed with a new parcel of roaſted ore. The pigs of tin are next put into a ſmall reverberatory furnace; where, without any addition, they are ſubjected to a very gentle heat; the pureſt part of the tin melts firſt, and is drawn off, forming what is called common grained tin; the other part contains ſome copper, arſenic and iron, which is brought to a ſtate of fuſion, and caſt into pigs, forming common tin.

Stream tin ore, which is peculiar to Cornwall, is prepared for the furnace by reducing it to powder, and paſſing it through wire ſieves, which have 16 meſhes in the ſquare inch. A blaſt furnace is employed, which is about ſeven feet high, and is ſupplied with air from two cylinders waſhed by an overſhot water wheel. The method of managing the furnace, after being fully heated, is the following. Three or four ſhovels full of ore, and two or three half buſhels of charcoal, without any kind of flux, form a charge with which the furnace is fed at ſhort intervals. There is a ſmall channel at the bottom of the furnace, through which the reduced tin is conſtantly flowing into a pit below, and the ſlag which accompanies it is removed from time to time, and returned into the furnace. When the pit is full, the melted metal is removed into an iron boiler three feet in diameter, having a ſmall fire under it, to keep the metal in fuſion. Two or three large pieces of charcoal are then placed upon the tin, and forced to the bottom by means of an iron inſtrument reſembling a wheel, with a long handle fixed in the axle. This produces a violent ebullition, and a little ſlag, before mixed with the metal, riſes to the ſurface, and is removed. In a minute or two the metal is tried, as it is called, by taking up a ladleful, and returning it again into the maſs; when, if it aſſume a bright ſilver-like appearance, and a uniform conſiſtence, the purification is complete. When cool to the proper degree, it is removed into the moulds, where it is formed into pigs of two or three cwt. Stream tin ore yields from 65 to 75 per cent. of the beſt and pureſt tin *.

Biſmuth.

* *Aikin's Diction. of Chem.* &c. ii.

Chap. IX. *Of the Ores of Biſmuth.*

Bismuth is found in the metallic ſtate, accompanied by native ſilver, blende, and galena, ſome other metals, and earthy ſubſtances. It is alſo met with in the ſtate of oxide, and alſo in the ſtate of ſulphuret.

Sect. I. *Of the Analyſis of the Ores of Biſmuth.*

In conducting the analyſis of the ores of biſmuth, previous roaſting is not requiſite. The native biſmuth, or oxide of biſmuth, diſſolves readily in nitrous acid, diluted with about one third of water, and either in the cold, or with a moderate heat; but boiling is neceſſary for the ſulphuret, to precipitate the ſulphur, and diſſolve the biſmuth. The greater part of the nitrate of biſmuth may be precipitated from the ſolution, and ſeparated from the metals with which it is uſually alloyed, by adding a large quantity of water. But to ſeparate the biſmuth totally, evaporate the clear liquor which remains over the precipitated oxide to a ſmall bulk, ſo as to retain in ſolution the nitrates of the other metals. Add muriatic acid by drops, as long as any white cloud is formed. This laſt precipitate conſiſts of the remaining portion of the oxide of biſmuth, mixed with muriate of ſilver, if the ore examined contain any of that metal. Then add a few drops of ſtrong nitric acid, which diſſolves the biſmuth, and leaves the ſilver; and to this portion of the nitrate of biſmuth add water, which ſeparates the whole by precipitation. To aſcertain whether the ſolution contains any ſilver, expoſe the precipitate by muriatic acid to the light, which will become of a bluiſh or flatey colour, if any ſilver has been diſſolved; but if not, the pure white colour remains unaltered. As the oxide of biſmuth is compoſed of 81.3 per cent. of metal, and 18.7 of oxygen, the proportion of metal in the ore may be preciſely aſcertained by weighing it. The other metals held in ſolution by the nitrous acid, which are chiefly lead, iron, copper and cobalt, may be ſeparated in the uſual way.

Sect. II. *Of the Reduction of the Ores of Biſmuth.*

The low degree of heat at which biſmuth is fuſible, renders

Bismuth. renders the reduction of the ores of this metal a very simple process. In the treatment of the native metal, and the oxide, the weight of the ore of black flux is put into a crucible along with it, covered with salt, to about a finger's breadth, and melted for 5 minutes with a brisk fire: when it is cold, the bismuth is found in a clean button. The flux employed by others is one part of borax, and the same quantity of powdered glass, to two of the ore, and the fusion is effected in a crucible lined with charcoal. With the oxide, a little oil, rosin, or charcoal, should also be mixed. Previous roasting is necessary in the treatment of the sulphuret of bismuth, to separate the sulphur; the other part of the treatment is the same with that now described.

But in the large way, the ores of bismuth are reduced merely by heating them along with burning fuel. Sometimes a shallow hole is made in the ground, and filled loosely with pieces of wood and bushes, and after the fire is kindled, the ore reduced to small pieces is thrown in; and sometimes the stump of a hollow pine tree is filled with wood and ore alternately, and set on fire; the bismuth separates from its matrix, and collects in a mass at the bottom.

Chap. X. *Of the Ores of Zinc.*

The ores of zinc are, the native carbonate, or common calamine, the oxide of zinc, and the sulphuret.

Sect. I. *Analysis of the Ores of Zinc.*

On account of the great volatility of zinc, it cannot be examined in the dry way, or subjected to assay, without particular precaution. In assaying blende, or the sulphuret of zinc, the ore, after being bruised, is to be carefully separated from particles of galena, or other impurities. It is then to be roasted, and the sulphur being driven off, to be reduced to fine powder, mixed with half its weight of charcoal, introduced into an earthen retort, to which a tube is fitted. The retort being exposed to a strong heat in a wind furnace, for three quarters of an hour, is to be gradually cooled, and on breaking it, the zinc is found in the neck, in metallic drops. The object may be accomplished in another way. Prepare the ore as before, and having mixed it with charcoal, let it be stratified in a crucible, with its own weight of copper clippings; and having luted on a perforated cover, subject it for nearly an hour to a low white heat. Allow it to cool, and examine and wash the contents. The globules of brass formed are thus easily separated from the other impurities, and the excess of weight of the brass above the copper, indicates the qnantity of zinc given out by the ore.

Blende, or *sulphuret of zinc*.—This ore is found to contain not only zinc and sulphur, but sometimes iron, lead, copper, and arsenic, with silica, alumina, and a portion of water. It may be analysed by the following process:

1. Introduce into a small coated glass retort, 200 grains of ore reduced to powder, and let it be gently ignited for a quarter of an hour. The fluid collected in the receiver will be found to be water.

2. Digest another portion of ore in repeated quantities of diluted nitric acid, till every thing soluble is taken up; wash the residue; weigh and ignite it; the loss of weight indicates the quantity of sulphur which is burnt off. Zinc.

3. Digest the residue in a little nitro-muriatic acid, till the insoluble portion becomes quite white, which is pure silica.

4. Add to the nitric solution (2.) a few drops of sulphate of soda; evaporate gently, and continue to add sulphate of soda while a precipitate is formed, and after being evaporated nearly to dryness, digest in diluted muriatic acid; the sulphate of lead remains behind.

5. Add together the nitro-muriatic solutions (3, 4.); decompose by carbonate of soda, and digest the precipitate in caustic ammonia; the zinc and copper are thus dissolved.

6. Let the ammoniacal solution (5.) be saturated with muriatic acid; boil it, and add caustic soda, while a precipitate takes place: this is the brown oxide of copper.

7. Oxide of zinc now only remains in the soda solution, which is to be saturated with muriatic acid, and decomposed by carbonate of soda. The precipitate obtained after ignition is oxide of zinc.

8. The residue which was insoluble in ammonia (5.), is to be treated repeatedly with nitric acid, and digested in caustic soda. Oxide of iron, contaminated slightly with arsenic, remains insoluble.

9. Having saturated the soda solution (8.) with nitric acid, add nitrate of lead, till no farther precipitate is formed; the precipitate is arseniate of lead.

10. And to the residual liquor, add first, sulphate of soda, to separate any nitrate of lead that may remain; filter the liquor, decompose it by carbonate of ammonia; the precipitate, washed and ignited, is pure alumina.

Calamine, or *carbonate of zinc*.—The ores of this species contain, besides the carbonate of zinc, the carbonates of lead, iron, and lime. The following is the mode of analysis.

1. The ore reduced to powder is to be dissolved in diluted nitric acid; the loss of weight during the solution indicates the quantity of carbonic acid. Neutralize the solution with caustic soda, evaporate gently, and add from time to time, a few drops of sulphate of soda while any precipitate is formed.

2. Having thus cautiously brought it nearly to dryness, digest it in highly rectified alcohol, and afterwards in a little cold water, which will take up every thing but the sulphates of lead and lime.

3. These may then be separated by digestion in sulphuric acid very much diluted, which will take up the sulphate of lime, leaving the sulphate of lead pure.

4. Neutralize the muriatic solution by soda, and evaporate nearly to dryness; then add alcohol to the residue, which will throw down the sulphate of lime with a little sulphate of soda, which latter may then be washed away by a little cold water.

5. The alcoholic solution (2.) after evaporation to dryness, may be digested in caustic ammonia, which will take up the oxide of zinc, and leave behind the oxide of iron.

6. The alkaline solution, after being slightly supersaturated with muriatic acid, is to be decomposed by a perfectly carbonated alkali, by which the zinc is procured

Zinc.

cured in the ſtate of carbonate; and this, after edulcoration, being diſſolved by ſulphuric acid, and the ſolution ignited in a platina crucible, affords dry ſulphate of zinc, containing 50 per cent. of oxide of zinc.

7. Thus, all the conſtituent parts are aſcertained except the water: to determine the proportion of this, take a freſh parcel of the ore, weigh it, and then ignite it for half an hour, note the loſs of weight, and transfer the reſidue into muriatic acid; if while it diſſolves in this fluid it gives out any gas, let the loſs of weight be noted; then add together the loſſes by ignition and ſolution; deduct from the ſum the known weight of the carbonic acid, and the reſidue is water.

Sect. II. *Of the Reduction of the Ores of Zinc.*

The ore being reduced to ſmall pieces, and the different impurities being ſeparated, it is next calcined in a reverberatory furnace at a moderate red heat, and if the ore be calamine, the carbonic acid is driven off, and if blende, it is deprived of its ſulphur. After this it is waſhed, and the metallic oxide being ſeparated from the earthy parts, it is dried, and carefully mixed with about one-eighth of its weight of charcoal, by grinding the ingredients together in a mill, and is now ready for the ſmelting proceſs. This is performed in a circular furnace, in which are fixed ſix large earthen pots, about four feet high and nearly of the ſhape of oil jars. An iron tube is inſerted into the bottom of each pot, and, paſſing through the arched floor of the furnace, terminates in a veſſel of water placed beneath, while the other end of the tube riſes within the crucible to a few inches of the top. The crucibles are then filled with the mixture of the ore and charcoal, to the level of the tube, the cover of each is carefully luted on, and an intenſe heat is to be kept up for ſeveral hours. The zinc, as the proceſs of reduction goes on, riſes in the form of vapour to the top of the pot, but as it cannot eſcape, it deſcends through the iron tube, paſſes into the water, and is condenſed in ſmall drops. The globules are afterwards fuſed, and caſt into the form of ingots, when it is fit for the market.

But as common zinc contains a little of other metals, as copper, lead, arſenic, iron, and manganeſe, which impair its quality, theſe impurities are partially ſeparated by melting the zinc in a crucible, and ſtirring into it, with a ſtick or earthen rod, a mixture of ſulphur and fat; by the latter the zinc is preſerved from oxidation, and the ſulphur combines with all the other metals except the zinc, and converting them into ſulphurets, they riſe to the top in the form of ſcoriæ, which may be removed. This proceſs is to be repeated as long as any ſcoriæ appear. The method of purifying zinc propoſed by Prouſt, is ſimple diſtillation in an earthen retort. The zinc paſſes over, and the oxides of the other metals remain behind. But it is ſuppoſed that the arſenic or lead cannot be ſeparated in this way.

Chap. XI. *Of the Ores of Antimony.*

Native antimony is a very rare production; the moſt common ore of antimony is the ſulphuret; but it is alſo ſometimes found in the ſtate of oxide.

Antimony.

Sect. I. *Of the Analyſis of the Ores of Antimony.*

Gray ore of antimony, or *ſulphuret of antimony*.—As the ſulphurets of antimony are the principal ores of this metal, we ſhall only deſcribe the proceſs by which the analyſis of theſe ores may be conducted.

1. Five hundred grains being reduced to fine powder, are to be digeſted with 1500 grains of pure nitric acid of ſpecific gravity 1.25, and 1000 grains of water, for half an hour, at 150° Fahrenheit; then add a quantity of pure water, equal to the reſt of the fluid; mix the whole well together, and pour off the liquor as ſoon as it becomes clear. This conſiſts of the nitrates of ſilver, lead, and copper, and perhaps a little iron diſſolved in an exceſs of acid. By ſimple boiling and filtration, the iron is ſeparated in the ſtate of red oxide.

2. Add to the ſolution muriate of ſoda, while any precipitate takes place, and let the whole ſtand ſtill the ſupernatant liquor becomes clear; the precipitate is pure muriate of ſilver.

3. The ſolution (2.) is next to be ſaturated with potaſh or ſoda, and concentrated by evaporation to one-third of its bulk. The addition of cauſtic ammonia in exceſs throws down the lead in the ſtate of oxide, and the copper remains in ſolution.

4. Acidulate ſlightly the ſolution (3.) with nitrous acid; add carbonate of potaſh, by which the green oxide of copper will be precipitated, and being ſubjected to a low red heat, is reduced to the ſtate of brown oxide, of which 100 parts indicate 85 of metal.

5. The portion of ore (1.) which was inſoluble, is next to be digeſted at a degree of heat below boiling, with ſucceſſive portions of nitromuriatic acid, compoſed of nitric acid, as long as any thing is taken up. The different ſolutions are then mixed, concentrated by evaporation, and poured into a large portion of pure water; a precipitate immediately takes place, which is the white oxide of antimony, which, after being ſeparated and waſhed, is to be mixed with twice its weight of crude tartar and a little nitre, and then expoſed to a full red heat, which in a few minutes reduces it to the metallic ſtate.

6. The ſolution (4.) contains now a little ſulphuric acid and iron, with ſome earthy matters. By adding nitrate of barytes while any precipitate is produced, the quantity of acid may be aſcertained, and then adding cauſtic potaſh in exceſs, which aſſiſted by a boiling heat, will precipitate the iron, and retain the alumina and ſilica.

7. The inſoluble reſidue (6.) contains ſulphur and earth; it is decompoſed by a red heat, the ſulphur being diſſipated, and the earth remains.

Sect. II. *Of the Reduction of the Ores of Antimony.*

The ore of antimony, which is found in ſufficient quantity to be employed in the proceſs of reduction in the large way, is the ſulphuret, the analyſis of which has now been detailed. The ore being ſeparated from the greater part of the ſtony matters which adhere to it, is placed on the bed of a reverberatory furnace, and covered with charcoal powder; and being brought to a low red heat, the ſulphuret enters into fuſion, and the earthy

Antimony

earthy parts floating on the surface, are removed with a rake. The melted part is cast into the form of large cakes, and is the crude antimony of the shops.

The metal is obtained in a state of purity from the crude antimony, or sulphuret, by different processes. The following is recommended as one of the best, and most frequently practised. The sulphuret being reduced to small pieces, is strewed thinly on the floor of a reverberatory furnace, to drive off the sulphur. The heat at first must not exceed that of the melting point of tin, otherwise the antimony will melt. A lambent blue flame is observed over the surface of the ore, which proceeds from the combustion of the sulphur; the metal is deprived of its lustre, and is converted into a grayish oxide. In the course of some hours, by carefully stirring the ore, and cautiously increasing the temperature, as the fusibility diminishes, it at last ceases to give out sulphureous vapours, and can bear a moderate red heat without melting. After the roasting, the ore is removed from the fire, and is found changed into an ash-gray oxide, weighing from 30 to 36 per cent. less than the sulphuret, but it is not yet entirely free from sulphur. To reduce the oxide, mix it with half its weight of crude tartar, and subject to a full red heat in a covered crucible. The oxide is decomposed by the carbonaceous part of the tartar, and the antimony reduced to the metallic form, is collected at the bottom of the crucible. A small proportion, however, still remains, dissolved by the sulphuret of potash formed by the alkaline base of the tartar, and the sulphur of the oxide. The quantity of metal which is thus obtained in the large way, amounts to 66 or 70 per cent. of the oxide employed. The loss, however, would be greater, if the ore has not been properly roasted.

The reduction is effected also by another process, which is supposed to be more economical. The roasted oxide is mixed with oil or fat, and a little powdered charcoal, and then introduced into a crucible; and as the metal begins to appear, powdered nitre, in the proportion of an ounce to a pound of oxide, is gradually injected, after which the whole mass is brought to thin fusion, affording a pure metal, and in greater proportion than in the usual way.

The only other process which we shall mention, for reducing sulphuret of antimony, is that by means of some of the other metals, for which the sulphur has a greater affinity than for the antimony. Proceeding on this principle, iron, copper, lead, silver, and tin, may be employed in the process; but as iron is not only more effectual, but also cheaper, it is preferred. The antimony obtained by this process, was formerly called *martial regulus*, not only on account of the iron being used in the preparation, but, not improperly, on account of a small portion of that metal which still adheres to it. The proportions recommended are the following: Eight ounces of small iron nails are heated in a crucible almost to whiteness; 16 ounces of crude or roasted sulphuret of antimony, coarsely pounded, are then added: the crucible is covered, and the fire kept up; and in a few minutes, when the whole is melted, three ounces of nitre are to be added; after a slight detonation has taken place, the whole is brought to perfect fusion. It is then put into an iron cone previously heated and greased, and as the mass becomes solid, the sides of the cone are struck, to promote the precipitation of the metal. When cold and weighed, a mass of antimony is obtained, equal to about 10 ounces of the sulphuret employed, covered with alkaline ferruginous scoriæ, from which it is easily separated by a blow of the hammer.

Cobalt.

But the metal is not yet entirely free from iron and sulphur; to purify it still farther, therefore, it is to be remelted. Two ounces of crude antimony, and three of nitre being added, and when the detonation has ceased, it is poured into a cone, and the metal is separated as before, from the scoriæ. Fuse the metal again; project upon it three ounces of nitre; separate the purified metal from the scoriæ; remelt with a strong heat, projecting gradually three ounces of nitre, and immediately pour it into a cone. About eight ounces of a beautiful stellated regulus, covered with yellowish white scoriæ, are thus obtained.

Chap. XII. *Of the Ores of Cobalt.*

Cobalt exists usually in a state of combination with arsenic and sulphur, or in the state of oxide. Scarcely any of its ores are free from arsenic and iron. Nickel is also sometimes abundantly mixed with the ores of cobalt, and occasionally a little manganese and copper.

Sect. I. *Of the Analysis of the Ores of Cobalt.*

White and gray cobalt ores, consisting chiefly of arsenic and cobalt, may be examined in the dry way, according to the following process, which, however, is not to be considered as very perfect. The ore is to be mixed with charcoal or saw-dust, and roasted to drive off the arsenic. The oxide after calcination is mixed with four times its weight of an equal mixture of carbonate of potash and tartar, and heated intensely, at the temperature which is required for melting cast-iron. A button of metallic cobalt is found beneath the scoriæ, which are always of a deep blue, or nearly black colour, owing to the combination of part of the oxide of cobalt. A hundred grains of this ore, treated by Klaproth according to this process, yielded 44 grains of metallic cobalt; but if the ore contained iron, copper, or nickel, it must have been alloyed with these metals, and perhaps not entirely free from arsenic.

But the analysis may be conducted with more accuracy according to the following process by Tassaert *. * *Ann. de Chim.* xxviii. p. 92.

1. With a view to ascertain the quantity of arsenic, he digested 100 parts of cobalt ore with diluted nitric acid. The whole was dissolved in a few hours, and deposited on cooling, white crystalline grains. By evaporation more crystals were deposited; the whole collected and dried, weighed 56 parts, and excepting three parts, the whole was sublimed. These 53 parts are oxide of arsenic, and indicate 49 per cent. of metal in the ore.

2. Three hundred parts of the ore digested with four times as much nitric acid, afforded a rose-coloured solution. After partial evaporation, and with the addition of water and heat, a pale-red precipitate (1.) was formed, leaving a rose-coloured solution. The solution being boiled with an excess of potash, afforded an oxide of cobalt, which was rose-coloured, and then green, and when dried in a red heat, black. The amount was 85 parts.

3. These

Cobalt.

3. Theſe 85 parts, diſſolved in nitro-muriatic acid, gave, with the addition of pure ammonia, a black precipitate, which, excepting a ſmall portion, was again diſſolved by an exceſs of alkali. The undiſſolved portion treated again with nitro-muriatic acid and ammonia, was reduced to four parts, and appeared to be oxide of iron.

4. The roſe-coloured precipitate (2.), which was a mixture of arſeniate of cobalt and iron, being decompoſed by cauſtic potaſh in exceſs, afforded a precipitate, which weighed, after being dried, 100 parts.

5. The 100 parts (4.) being again diſſolved in nitric acid, and the ſolution being partially evaporated, and then diluted with water, gave a precipitate of 27 parts of oxide of iron, and left a clear ſolution of cobalt.

6. The nitrate of cobalt (5.) was decompoſed by ammonia; and the precipitate rediſſolved by an exceſs of the alkali, excepting an inſoluble oxide of iron, amounting to 15 parts. The ſolution was then added to the ammoniated cobalt (3.).

7. The inſoluble precipitates of oxide of iron (3. 5. and 6.) were then mixed and examined. With borax they gave a blue glaſs, indicating a portion of cobalt ſtill combined. They were then diſſolved in nitro-muriatic acid, precipitated by ammonia, and the wet precipitate was introduced into acetic acid, which at firſt diſſolved the whole, but by boiling and evaporation nearly to dryneſs, four times ſucceſſively, the oxide of iron became inſoluble, while the cobalt remained in ſolution, and as it was more freed from iron, it aſſumed more of a fine roſe colour. The ſolution of acetate of cobalt was ſuperſaturated with ammonia, and the ſolution of ammoniated cobalt was added to the different portions of the ſame, obtained in former experiments. To expel the ammonia, the whole ſolution was boiled, and by adding potaſh, the whole oxide of cobalt was precipitated, which being waſhed and dried, amounted to 133 parts. The oxide being reduced in a crucible lined with charcoal, afforded pure metallic cobalt, of ſpecific gravity 8.538.

8. To determine the quantity of ſulphur, 100 parts of the ore were ſeparately boiled with 500 of nitric acid, and diluted with water, to ſeparate the whole of the oxide of arſenic that depoſited ſpontaneouſly. The ſulphur was now converted into ſulphuric acid; nitrate of barytes was added, and a precipitate of ſulphate of barytes was formed, the quantity of which being aſcertained, the proportion of ſulphur might in this way be eſtimated.

Sect. II. *Of the Reduction of the Ores of Cobalt.*

As cobalt in the metallic ſtate is not applied to any uſeful purpoſe, the reduction of its ores in this view is not an object of manufacture. But as it is extenſively employed in the ſtate of oxide, to give a fine blue colour to glaſs, porcelain, &c. we ſhall here give a ſhort account of the method of preparing the ores for this purpoſe. When the oxide of cobalt is ſimply mixed, after calcination, with a quantity of vitrifiable earth, it is then known by the name of *zaffre*, and it is in the form of a brown, gritty powder; but if it be melted with a quantity of vitrifiable matters, it yields a glaſs of a very deep blue colour, which being reduced to a fine powder, conſtitutes the ſmalt of commerce.

Nickel.

Preparation of zaffre.—This ſubſtance is chiefly prepared in the large way, in different parts of Germany, but particularly in Saxony, and the following is the method of its preparation. The furnace employed is ſomewhat like a baker's oven, and is ſo conſtructed, that the flame of wood may be reverberated on all ſides. The cobalt ore is placed on the hearth of the furnace, and by the action of the flame ſoon becomes red hot; a denſe arſenical vapour ariſes, which is conducted through a horizontal wooden ſquare trough or chimney, ſometimes 100 fathoms long. In this chimney the arſenic is chiefly condenſed, yet it is ſaid, that ſome of the vapours, on account of their great volatility, eſcape. The calcination is continued till the exhalation of vapours nearly ceaſes: the ore is then reduced to powder, calcined a ſecond time, again ground, and paſſed through a fine ſieve. The powder is then mixed with two parts of powdered flint or quartz, after which it is moiſtened, and packed into barrels, where it acquires a great degree of hardneſs. This is the zaffre of commerce, in the ſtate in which it is exported; the exportation of the ſimple coloured oxide being prohibited under heavy penalties, it is ſaid that the flints are added with a view to conceal the real nature of the ſubſtance.

Preparation of Smalt.—This is alſo ſometimes called zaffre, and when reduced to a very fine powder, it is called *azure blue*. It is prepared with about equal parts of calcined cobalt ore, potaſh, and ground flints. This mixture is firſt fritted, and afterwards made into glaſs, in pots like thoſe of the glaſs-houſe. Eight or ten hours are required for its fuſion. When the blue colour is perfect, the fuſed matter is taken out with iron ladles, and dropt into cold water, which makes it crack in all directions, ſo that it is eaſily reduced to fine powder. This operation is performed in a mill of very hard ſtone, incloſed in a wooden caſe. In the preparation of the ſmalt by the above proceſs, a portion of biſmuth, which uſually accompanies the ores of cobalt, is found. Above it there is alſo a mixed alloy of iron, copper, and arſenic.

Chap. XIII. *Of the Ores of Nickel.*

Nickel, as it is found in the ſtate of ore, is uſually combined with arſenic and ſulphur, copper and iron, or with oxygen, in the form of oxide.

Sect. I. *Of the Analyſis of the Ores of Nickel.*

When the ore contains, beſide nickel, arſenic, ſulphur, copper, and iron, with which it is uſually accompanied, cobalt, ſilver, and biſmuth, with ſome earthy matters, the analyſis may be conducted according to the following proceſs.

1. The ore being reduced to an impalpable powder, is to be two or three times digeſted in nitric acid, conſiderably diluted, after which every thing ſoluble will be taken up. During the proceſs, nitrous gas is given out.

2. The inſoluble part conſiſts moſtly of ſulphur and ſilica, which after being dried, weighed and heated, the ſulphur burns off, and the difference of weight before and after ignition, indicates its amount. The reſidue, after boiling in a little nitrous acid, is pure ſilica.

3. Saturate the two nitrous ſolutions (1. and 2.) with pure

Manganeſe

pure ſoda, evaporate conſiderably, and pour the ſolution into cold diſtilled water; the oxide of biſmuth is precipitated.

4. Add muriate of ſoda by drops to the filtered ſolution, while any precipitate is formed, which is the muriate of ſilver.

5. Evaporate the ſolution nearly to dryneſs, boil it with ſtrong nitric acid while nitrous gas is given out; red oxide of iron is precipitated during the proceſs.

6. Remove the oxide of iron, ſaturate the liquor with ſoda, and add nitrate of lead while any precipitate takes place. This is the arſeniate of lead, which may be ſeparated by filtration.

7. Decompoſe the nitrous ſolution by carbonate of ſoda: digeſt the waſhed precipitate in liquid ammonia; the oxide of iron mixed with alumina, is left behind, and may be ſeparated by cauſtic fixed alkali.

8. Let the ammoniacal ſolution be ſlightly ſuperſaturated with nitric acid, and a poliſhed bar of iron introduced; in this way the copper will be ſeparated: then decompoſe the liquid by carbonate of ſoda, and digeſt the precipitate in ammonia, and the iron employed in ſeparating the copper will be removed.

9, The ſolution now contains only nickel and cobalt. Let it be evaporated till the exceſs of ammonia be expelled. This is the caſe when the vapour ceaſes to diſcolour moiſt turmeric paper. Then add pure potaſh or ſoda to the ſolution largely diluted, while any precipitation takes place. The precipitate is the oxide of nickel. The cobalt now only remaining in the ſolution, may be ſeparated in the uſual way. To reduce the oxide of nickel, mix it with glaſs of borax and a ſmall quantity of carbonaceous matter, and then ſubject it in a crucible to the moſt powerful furnace heat. A button of pure nickel is thus produced.

As the ores of nickel are not very abundant, and as this metal is little employed for purpoſes of manufacture, the reduction of its ores does not extend beyond chemical analyſis, which we have now detailed.

Chap. XIV. *Of the Ores of Manganeſe.*

Manganese uſually exiſts in the ſtate of oxide, combined with a ſmall proportion of iron, or in the ſtate of carbonate, and ſometimes in that of ſulphuret.

Sect. I. *Of the Analyſis of the Ores of Manganeſe.*

Radiated gray ore of manganeſe.—This ore was analyſed by Klaproth according to the following proceſs.

"Two hundred grains of the ore, in groſsly broken cryſtals, were heated to a thorough redneſs in a ſmall coated glaſs retort, connected with the pneumatic apparatus. The gas collected amounted only to nine grains, upon deducting the common air of the apparatus; but ſhewed by the lively combuſtion of an iron wire confined in it, that it was pure oxygen gas.

"2. In the ſmall intermediate hollow glaſs-ſphere of the apparatus, a conſiderable quantity of moiſture has condenſed, which weighed 14 grains, and was pure water.

"3. The manganeſe, having ſuſtained that ignition, weighed 181 grains. The external luſtre of the cryſtals was very much diminiſhed, and their gray colour turned blackiſh.

"One hundred parts of this ore have, conſequently, been decompoſed into, Manganeſe.

Black oxide of manganeſe,	90.50
Water,	7.
Oxygen gas,	2.25
	99.75 *."

* *Eſſays*, ii. 245.

As manganeſe is chiefly employed for economical purpoſes, in the ſtate of oxide, the reduction of its ores forms no object of manufacture.

Chap. XV. *Of the Ores of Molybdena.*

For an account of the treatment of the ores of molybdena, which exiſts in the ſtate of ſulphuret and in that of oxide only, ſee Chemistry; ſee alſo the analyſis of the molybdate of lead, in the chapter on lead, in this article.

Chap. XVI. *Of the Ores of Arſenic.*

Arsenic is found native, when it is alloyed with a ſmall portion of iron, and ſometimes alſo with a little gold or ſilver; in the ſtate of ſulphuret, or in the ſtate of oxide.

Sect. I. *Of the Analyſis of the Ores of Arſenic.*

The method of analyſing the ores of arſenic by Bergman, has been already given under Arsenic in the article Chemistry, as well as the method of ſubliming the metal in cloſe veſſels, to obtain it in a ſtate of purity. The following is recommended as a ſucceſsful proceſs for preparing this metal for nice chemical purpoſes. Mix a quantity of arſeniate of potaſh with about $\frac{1}{8}$ part of charcoal, and let it be ſublimed in a cloſe glaſs veſſel, ſlowly heated to redneſs. The metallic arſenic thus obtained is in the form of beautiful brilliant cryſtals.

Sect. II. *Preparation of White Arſenic and Orpiment.*

White arſenic.—In the large way, this is prepared, by roaſting the arſenical ores, previouſly ground to powder, and mixed with charcoal or ſaw duſt, at a low red heat for ſeveral hours. The roaſted ore is then ſubjected to a ſecond ſublimation, according to the following method; which is practiſed in Bohemia. The veſſels in which the ſublimation is performed, are ſtrong ſquare boxes of caſt iron furniſhed with conical heads, which are cloſely luted with clay. Theſe boxes are arranged in a ſpacious brick area, which is heated by flues proceeding from two furnaces, placed a little below them. When the impure arſenic has become red-hot, it is removed into the boxes by 15 pounds at a time, where it is brought into fuſion, and about an hour after begins to ſublime into the conical head. When the arſenic ceaſes to riſe, another quantity is introduced into the veſſel, and treated in the ſame way. Theſe additions are continued till about 150 pounds of arſenic have been thus treated in each veſſel; a period of about 12 hours is requiſite for the ſublimation of the whole quantity. When the veſſels are cold, the conical head is taken off, and the ſublimed arſenic is broken off with hammers, at the ſame time any impurities that adhere to it are ſeparated, for a ſecond operation.

Orpiment.—

Arſenic. *Orpiment.*—This ſubſtance is prepared in the ſame manner, and with the ſame apparatus, but the arſenic is previouſly mixed with half its weight of ſulphur. In both caſes a uniform red heat ſhould be kept up during the operation, ſo that the materials in the lower veſſel may be always in fuſion; and when theſe materials are of any tolerable degree of purity, almoſt the whole is ſublimed.

As the remaining metals have yet been found only in very ſmall quantity, the reduction of their ores is not an object of much importance. A ſhort account of the method of analyſing them will be found under CHEMISTRY, and the characters of the ores, with their conſtituent parts, will be found under MINERALOGY.

For the account of an elaborate analyſis of the ores of tellurium, ſee Klaproth's Eſſays, ii. 1.

ORE

ORELLANA, FRANCIS, the firſt European, as is commonly thought, who diſcovered the river of the Amazons. In 1539, he embarked near Quito, upon the river Coca, which farther down takes the name of Napo. From this he fell into another large river; and, leaving himſelf entirely to the direction of the current, he arrived at Cape North, on the coaſt of Guiana, after ſailing nearly 1800 leagues. Orellana periſhed 10 years after, with three veſſels which had been intruſted to him in Spain, without being able to find again the mouth of this river. In ſailing down the river, he met with ſome armed women, againſt whom an Indian cacique had told him to be on his guard; and he thence named it *the river of the Amazons*.

ORENSE, an ancient town of Spain, in the kingdom of Galicia, with a biſhop's ſee, famous for its hot baths, is ſeated at the foot of a mountain, on the river Minho, over which there is a handſome bridge of one arch. W. Long. 7. 27. N. Lat. 42. 16.

ORESTES, in *Ancient Hiſtory*, a ſon of Agamemnon and Clytemneſtra. When his father was cruelly murdered by Clytemneſtra and Ægiſthus, young Oreſtes was ſaved from his mother's dagger by means of his ſiſter Electra, called by Homer *Loadicea*, having been privately conveyed to the houſe of Strophius, who was king of Phocis, and who had married a ſiſter of Agamemnon. He was tenderly treated by Strophius, who carefully educated him with his ſon Pylades. The two young princes ſoon became acquainted, and from their familiarity aroſe the moſt inviolable attachment and friendſhip. When Oreſtes came to years of diſcretion, he viſited Mycenæ, and avenged his father's death by aſſaſſinating his mother Clytemneſtra and her adulterer Ægiſthus. Various accounts are given of the way in which theſe murders were committed. After their commiſſion, however, he was acknowledged king of Mycenæ; but being tormented by the Furies, a puniſhment which the ancients always thought followed parricide, he exiled himſelf to Argos, where he was ſtill purſued by the vengeful goddeſſes. Apollo, however, purified him, and he was acquitted by the unanimous opinion of the Areopagites, whom Minerva herſelf inſtituted on this occaſion, according to the narration of the poet Æſchylus, who flatters the Athenians in his tragical ſtory, by repreſenting them as paſſing judgement even upon the gods themſelves. According to Pauſanias, Oreſtes was purified of the murder, not at Delphi, but at Trœzene, where ſtill was ſeen a large ſtone at the entrance of Diana's temple, upon which the ceremonies of purification had been performed by nine of the principal citizens of the place. There was alſo at Megalopolis, in Arcadia, a temple dedicated to the Furies, near which Oreſtes cut off one of his fingers with his teeth in a fit of inſanity. Theſe different traditions are confuted by Euripides, who ſays that Oreſtes, after the murder of his mother, conſulted the oracle of Apollo at Delphi, where he was informed that nothing could deliver him from the perſecutions of the Furies, if he did not bring into Greece Diana's ſtatue, which was in the Taurica Cherſoneſus, and which, as it is reported by ſome, had fallen down from heaven. This was an arduous enterpriſe. The king of Cherſoneſus always ſacrificed on the altars of the goddeſs all ſuch as entered the borders of his country. Oreſtes and his friend were therefore both carried before Thoas the king of the place, and they were doomed to be ſacrificed. Iphigenia, Oreſtes's ſiſter, was then prieſteſs of Diana's temple, and it was her office to immolate theſe ſtrangers. The intelligence that they were Grecians delayed the preparations, and Iphigenia was anxious to learn ſomething about a country which had given her birth. She even intereſted herſelf in their misfortunes, and offered to ſpare the life of one of them, provided he would convey letters to Greece from her hand. This was a difficult trial: never was friendſhip more truly diſplayed, according to the words of Ovid, *ex Pont.* 3. *el.* 2.

Ire jubet Pylades carum moriturus Oreſtem.
Hic negat; inque vicem pugnat uterque mori.

At laſt, however, Pylades gave way to the preſſing intreaties of his friend, and conſented to carry the letters of Iphigenia to Greece. Theſe were addreſſed to Oreſtes himſelf; and therefore theſe circumſtances ſoon led to a diſcovery of the connections of the prieſteſs with the man whom ſhe was going to immolate. Iphigenia was convinced that he was her brother Oreſtes; and when the cauſe of their journey had been explained, ſhe herſelf reſolved with the two friends to fly from Cherſoneſus, and to carry away the ſtatue of Diana. Their flight was diſcovered, and Thoas prepared to purſue them; but Minerva interfered, and told him that all had been done by the will and with the approbation of the gods. Some imagine that Oreſtes came to Cappadocia from Cherſoneſus, and that there he left the ſtatue of Diana at Comana. Others contradict this tradition; and Pauſanias thinks that the ſtatue of Diana Orthia was the ſame as that which had been carried away from the Cherſoneſus. Some again ſuppoſe that Oreſtes brought it to Aricia in Italy, where Diana's worſhip was eſtabliſhed. It was after this that Oreſtes aſcended the throne of Argos, where he reigned in perfect ſecurity, married Hermione the daughter of Menelaus, and gave his ſiſter

Oreſtes || Orffyreus's Wheel.

to his friend Pylades. The marriage of Oreſtes with Hermione is alſo a matter of diſpute among the ancients. All are agreed that ſhe had been promiſed to the ſon of Agamemnon; but Menelaus had married her to Neoptolemus the ſon of Achilles, who had ſhown himſelf ſo truly intereſted in his cauſe during the Trojan war. The marriage of Hermione with Neoptolemus diſpleaſed Oreſtes; he remembered that ſhe had been early promiſed to him; he was therefore determined to recover her by force or artifice. This he did by procuring the aſſaſſination of Neoptolemus. According to Ovid's epiſtle of Hermione to Oreſtes, Hermione had always been faithful to her firſt lover, and even it was by her perſuaſions that Oreſtes removed her from the houſe of Neoptolemus, for ſhe was diſſatisfied with the partiality of Neoptolemus for Andromache, and her attachment for Oreſtes was increaſed. There are, indeed, various opinions likewiſe about this: he, however, certainly managed to ſecure her affections, and retired to his kingdom of Argos. His old age was crowned with peace and ſecurity, and he died in the 90th year of his age, leaving his throne to his ſon Tiſamanes by Hermione. Three years after, the Heraclidæ recovered the Peloponneſus, and baniſhed the deſcendants of Menelaus from the throne of Argos. Oreſtes died in Arcadia, as ſome ſay, by the bite of a ſerpent: and the Lacedemonians, who had become his ſubjects at the death of Menelaus, were directed by an oracle to bring his bones to Sparta. They were ſome time after diſcovered at Tegea, and his ſtature appeared to be ſeven cubits, according to the traditions mentioned by Herodotus and others. The friendſhip of Oreſtes and of Pylades became proverbial: and the two friends received divine honours among the Scythians, and were worſhipped in temples.

ORFA, a conſiderable town of Diarbeck (anciently Meſopotamia) in Aſia, very pleaſantly ſituated, and well fortified. It formerly belonged to Perſia; but is now in the Turkiſh dominions, and is a place of very good trade. It has a ſtately caſtle ſtanding on a hill, which makes a great ſhow at a diſtance. They pretend to ſhow the well where Rachel watered her father's camels when Jacob met her, and they call it *Abraham's well*. E. Long. 37. 45. N. Lat. 36. 20.

ORFFYREUS's *Wheel*, in *Mechanics*, is a machine ſo called from its inventor, which he aſſerted to be a perpetual motion. This machine, according to the account given of it by Graveſande, in his Oeuvres Philoſophiques, publiſhed by Allemand, Amſt. 1774, conſiſted externally of a large circular wheel, or rather drum, 12 feet in diameter, and 14 inches deep; being very light, as it was formed of an aſſemblage of deals, having the intervals between them covered with waxed cloth, to conceal the interior parts of it. The two extremities of an iron axis, on which it turned, reſted on two ſupports. On giving a ſlight impulſe to the wheel, in either direction, its motion was gradually accelerated; ſo that after two or three revolutions it acquired ſo great a velocity as to make 25 or 26 turns in a minute. This rapid motion it actually preſerved during the ſpace of two months, in a chamber of the landgrave of Heſſe, the door of which was kept locked, and ſealed with the landgrave's own ſeal. At the end of that time it was ſtopped, to prevent the wear of the materials. The profeſſor, who had been an eye-witneſs to theſe circumſtances, examined all the external parts of it, and was convinced that there could not be any communication between it and any neighbouring room. Orffyreus however was ſo incenſed, or pretended to be ſo, that he broke the machine in pieces and wrote on the wall, that it was the impertinent curioſity of Profeſſor Graveſande which made him take this ſtep. The prince of Heſſe, who had ſeen the interior parts of this wheel, but ſworn to ſecreſy, being aſked by Graveſande, whether, after it had been in motion for ſome time, there was any change obſervable in it, and whether it contained any pieces that indicated fraud or deception, anſwered both queſtions in the negative, and declared that the machine was of a very ſimple conſtruction.

Orford || Organ.

ORFORD, a town of Suffolk in England, 88 miles from London, ſituated between two channels, where the river Ore, after having joined the Ald, falls into the ſea. It was once a large populous town, with a caſtle; of which, and of a nunnery near the quay, there are ſtill ſome ruins. The towers of the caſtle and its church are a ſea-mark for colliers, coaſters, and ſhips that come from Holland. There is a light-houſe at Orford-Neſſe, which is alſo of great uſe to ſeamen, and is a ſhelter for them when a north-eaſt wind blows hard upon the ſhore. The town was incorporated by Henry III. has a mayor, 18 portmen, 12 chief burgeſſes, a recorder, a town-clerk, and two ſerjeants at mace. Though it ſent members to parliament, in the 26th of Edward I. yet it had no more elections till the reign of Edward IV. It ſtill ſends two members to parliament, and has the title of an *earldom*. There are ſtill remaining the ruins of an holy houſe where the ſeamen's wives uſed to pray for the ſafety of their huſbands. By the withdrawing of the ſea, it has been deprived of its chief advantage, for it now deſerves not the name of a harbour. It had the honour to give title of earl to the brave admiral Ruſſel, which, after being many years extinct, was revived in the perſon of Sir Robert Walpole. E. Long. 1. 40. N. Lat. 52. 15.

ORGAL, among dyers, denotes the lees of wine dried.

ORGAN, in general, is an inſtrument or machine deſigned for the production of ſome certain action or operation; in which ſenſe the mechanic powers, machines, and even the veins, arteries, nerves, muſcles, and bones of the human body, may be called *organs*.

ORGAN, in *Muſic*, denotes the largeſt and moſt harmonious of all wind-inſtruments; on which account it is called the *organ*, ὄργανον, the inſtrument, by way of excellence; chiefly uſed for playing a thorough baſs, with all its accompaniments.

That organs are the invention of remote antiquity has been argued, and ſeems now to be generally allowed; but the particular time and country in which the diſcovery was made appears to be loſt amidſt the ruins of time. In ancient authors there are a variety of paſſages where mention is made of the organ, but it is at leaſt poſſible that an inſtrument is meant very different from that which now goes by the ſame name. From St Auguſtin's commentary on the 4th verſe of the 150th Pſalm we learn, that the Greeks had another name for thoſe inſtruments in which bellows were employed; that the name *organ* was appropriated to this particular inſtrument merely from the uſage of the Latin tongue; and that it was indifferently given to all inſtruments uſed to accompany the voice in concert. We mention this, not becauſe we doubt of the

Organ. antiquity of the organ, but merely to ſhow that the time of its invention cannot be determined by the era of the authors where its name occurs. As the following obſervation, extracted from a periodical work which has long been in deſerved eſteem with the public, are intended to aſcertain its early uſe, we ſubmit them, without commentary, to the judgement of our readers. Caſſiodorus has deſcribed our organ in a few words, lib. 1. Epiſ. 45. Praiſing that art, which makes *Organa extraneis vocibus inſonare, et peregrinis flatibus complet, ut muſica poſſit arte cantare.* And the emperor Julian has given an exact deſcription of it in an epigram, which may be found in the *Anthologia*, b. i. ch. 86. In his time theſe inſtruments were in ſuch requeſt, that Ammianus Marcellinus, b. xiv. ch. 6. complains that they occaſioned the ſtudy of the ſciences to be abandoned. However, thoſe muſical inſtruments whoſe melody is produced by wind, had been known at Rome long before. Witneſs that agreeable poem of Capa, which for its elegance has been aſcribed to Virgil; where we find that the muſician introduces the wind into her pipes by means of a pair of bellows, which ſhe holds under her arms and blows. In the hydraulic organ, the water moves the air, inſtead of bellows. Cornelius Severus, in his *Ætna*, has given an exact deſcription of it (A). And though there were two kinds of hydraulic and pneumatic inſtruments, the firſt of which played by the inſpiration and action of bellows, and the other by the action of water, it is certain, nevertheleſs, that both of them were pneumatic, being inſpired by the wind. And Heron of Alexandria, in his Pneumatics, has treated of hydraulics as belonging to pneumatics. This Heron lived in the time of Ptolemy Euergetes, king of Egypt. When Suetonius ſays, that Nero *Organa hydraulica novi et ignoti generis circumduxit*, he did not mean that they were unknown at Rome before Nero, but that thoſe of Nero were of a new conſtruction. Thoſe were the hydraulics of a new fabric, which he exhibited to the people at the public games, as Suetonius relates a little after. Heliogabalus, one of the worthy ſucceſſors of Nero, like him was fond of theſe hydraulics; and Alexander Severus, his couſin and ſucceſſor, had the ſame inclination. Claudian, who lived ſome time after, has left us this elegant deſcription of them: Organ.

Gent. Mag.

Et qui magna levi detrudens murmura tactu
Innumeras voces ſegetis moderatur aënæ;
Intonet erranti digito, penituſque trabali
Vecte laborantes in carmina concitat undas.

This very conſtruction which is obſerved in the pipes of an organ, gradually decreaſing in magnitude, has been repreſented in an epigram of Optatianus Porphyrius, who lived in the time of Conſtantine. This epigram, which is quoted in Pithon's collection of ancient epigrams, is compoſed of verſes of an unequal length, ſucceſſively increaſing. This correſponds with thoſe words of the old ſcholiaſt on Juvenal, ſat. 8. ver. 270. *Tunicâ Galli utuntur in ſacris in modum organi utrinque decreſcentibus virgulis purpureis.*

On the whole, then, the antiquity of organs, or of inſtruments of a very ſimilar nature, can ſcarcely be diſputed; but nothing very particular reſpecting the time, place, or manner, of the invention can poſſibly be determined from thoſe incidental obſervations which occur in the writings of the ancients (B). It appears indeed to have been borrowed by the Latins from the Greeks, but not to have been in general uſe till the eighth century; and it has been affirmed, that, in France, it was not known till the time of Louis *le Debonair*, i. e. A. D. 815. when an Italian prieſt taught the uſe and conſtruction of it, which he himſelf had learned at Conſtantinople. By ſome, however, it has been carried as far back as Charlemagne, and by others as far as Pepin. Bellarmine ſays that the organ began to be uſed in the ſervice of the church about the year 660, as Platina relates out of the Pontifical: for when Pope Vitalian reformed the ſinging of the Roman church, he added to it organs in order to ſupport and embelliſh it. Ammonius thinks, however, that this happened after the year 820, in the time of Louis the Pious. Perhaps the learned Bingham is our ſureſt guide in determining this point. He poſitively aſſerts † that there were no ſuch things as organs

† Origines Sacræ.

(A) Which is thus tranſlated by Mr Jabez Hughes:

As in an organ *, firſt the ruſhing air
A maſs of waters does before it bear;
And then the waters, in their turn, we find
Drive through the hollow pipes the vanquiſh'd wind;
Which ſtrongly from its ſtrait confinement ſent,
Comes loudly rattling through the narrow vent:
Still as the waters preſs, the ſpirits ſound,
And ſpread the bubbling ſymphony around.
So air and water meet, &c.

* *Organon Hydraulicon.*

It is by no means certain that Cornelius Severus was the author of this poem, though it is publiſhed under his name by Le Clerc. Seneca's authority, on which the Younger Scaliger founds his opinion, enforces no ſuch concluſion. He only ſays, that "Severus was not diſcouraged from writing on this ſubject, by its having been already treated by Ovid and Virgil." Barthius, in his notes on Claudian, refers it to Manilius, and in his *Adverſaria* to ſome Chriſtian writer. By others it has been aſcribed to Virgil, and by Scaliger, the father, to Quintilius Varus. But though it is leſs clear and methodical than Virgil, and though it has been much mutilated by time, it certainly was penned by a maſterly and truly poetical hand.

(B) Vitruvius deſcribes an organ in his 10th book, and St Jerome mentions one with 12 pair of bellows which might be heard a thouſand paces, or a mile; and another at Jeruſalem which might be heard at the Mount of Olives.

Organ. organs in use in the ancient church; and that though church-music was as old as the apostles, instrumental music was not so. He also says that it was the general opinion of the learned in his days, that organs were not introduced into churches till after the time of Thomas Aquinas, A. D. 1250; and for this opinion, as far as the authority of Aquinas will go, we have a positive proof; for in his sums we find these words: "Our church does not use musical instruments, as harps, and psalteries, to praise God withal, that she may not seem to Judaize (c)." From hence it has reasonably been concluded, particularly by the learned Gregory *, that they were not used in churches in his time. Mr Wharton has also observed that *Marinus Sanutus* (who flourished A. D. 1290) first introduced wind-organs into churches; from this circumstance he derived the name *Torcellus*, the name for organ in the Italian language. About this same time Durandus in his *Rationale* speaks of them as generally received in the church; and he, in Mr Gregory's opinion, is the first author who takes notice of it. These authorities are strong, and the opinions founded on them by the learned render them still more convincing: it appears, however, from the testimony of Gervas the monk of Canterbury, who flourished A. D. 1200, that organs were introduced upwards of 100 years even before that time; for in his description of Lanfranc's church, as it was before the fire in 1174, he has these words, "*Crux australis supra fornicem* organa *gestare solebat*." We do not say that this invalidates the reasoning of the learned Bingham; of that our readers are to judge, and in forming their judgements they will be determined by the credit of the testimonies which are here opposed to each other. If we suppose that of Gervas the strongest, and in opposition to the other conclude from it, that organs were introduced into England long before the 13th century, it will give some countenance to an opinion which prevails pretty generally, viz. that in Italy, Germany, and England, they became frequent about the 10th century. See Music, p. 493. But however we are disposed to determine this matter (which is in itself but of little consequence), it is certain that the use of the organ was very common in the latter ages of the church, and the propriety of it was undisputed. In the last century, however, during the civil wars, organs were removed from the churches in England; and so generally reprobated, that, at the Restoration, there could scarce be found either organists, organ builders, or singers (d).

* *Bingham ubi supra*

The organs in Germany (says Dr Burney) in magnitude, and the organists in abilities, seem unrivalled Organ. in any other part of Europe, particularly in the use of pedals. In Marpurg's Essays, vol. iii. there is a minute account of a variety of organs in Germany; of all which the longest pipe of the manuals is 16 feet long, and of the pedals 32. One of the largest organs in Germany, but which Marpurg has omitted in his list, is at Gorlitz in Upper Lusatia. It would be to no purpose to enlarge our article with a more minute account of the state of organic music in different parts of the world; in various parts of the article Music, observations connected with this subject will be found, and to that we must refer. We may particularly notice, for the perusal of those who wish for further information on this subject, the observations which have been made on organs in the *History of* Music, at p. 493. We need scarcely refer to the life of Handel, which all our readers who are fond of music of any kind, particularly sacred, have undoubtedly perused.

The church-organ consists of two parts; the main body, called the *great organ;* and the positive or *little organ*, which forms a small case or buffet, commonly placed before the great organ. The size of an organ is generally expressed by the length of its largest pipe: thus they say, an organ of 8, 16, 32 feet, &c. The organ in the cathedral church at Ulm in Germany is 93 feet high and 28 broad: its largest pipe is 13 inches diameter, and it has 16 pair of bellows.

The several parts of the church-organ are as follow. Plate CCCXCI. Fig. 1. HIH is the sound-board; which is composed of two parts, the upper board or cover HHH, and the under board HI, which is much thicker than the other; each of these consists of several planks laid with their edges to each other, and joined very close together. In the under side of the lower board there are made several channels, which run in the direction LL, MM, &c. and are continued as far as there are stops in the organ, and come almost to the edge HK. These channels are covered over very close with parchment or leather all the way, except a hole that is commonly at the fore-end next HK, upon which a valve or puff is placed. These channels are called *partitions*. When this valve or flap is shut, it keeps out the air, and admits it when open. On the upper side of the lower board there are likewise cut several broad square channels, lying cross the former, but not so deep as to reach them; these lie in the direction LN, PQ, &c. To fit these channels, there are the same number of wooden sliders or registers *f*, *f*, *f*, &c. running the

(c) The lawfulness of using organs in churches, has, however, been ably defended by an appeal to the use which the Jews made of instruments of music in divine service; and with much reason; for were the use criminal in us, as was asserted by many well-meaning men of the last century, and as it is still thought by some in this, it would unquestionably have been equally unlawful for the Jews. The Christians in Aquinas's time, however acted wisely in avoiding the use of them, if by so doing they would have given offence to their weaker brethren. For though they are highly ornamental, and in some churches may be productive of good effects, yet the use of them is far from being essential, and may be easily dispensed with.

(d) Organs have never yet been used in the establishment of Scotland, since that became Presbyterian; but they are used in Holland, where that form of church-government also obtains. Bishop Horne, in a sermon which he preached at the opening of the new organ at Canterbury in 1784, says that he believes some Presbyterian dissenters in England have adopted it in their places of worship. See his Sermon, page 8.

Organ. whole length; and these may be drawn out or thrust in at pleasure. The number of these is the same as that of the stops in the organ.

IKKK is the wind-chest, which is a square box fitted close to the under side of the lower board, and made air-tight, so that no air can get out but what goes through the valves along the partitions.

VV are the valves or puffs which open into the wind-chest; they are all inclosed in it, and may be placed in any part of it, as occasion shall require. One of these valves, with the spring that shuts it, and the wire that opens it, is represented by fig. 2.

C, D, E, F, &c. are the keys on which the fingers are placed when the organ is played: these keys lie over the horizontal bar of wood W, in which are stuck an equal number of wire-pins ∞, ∞, on which keys are fixed; and the keys move up and down on the bar, as on a centre. There is another bar, against which the keys fall when put down, and which is here marked 3: on this also are several wires, which go through the keys, to guide them; and on this bar a list is fastened to hinder the keys from knocking against the wood.

The keys are made to communicate with the valves several ways, as we shall now describe. First, *s*, *s*, *s*, are the key-rollers, moving on the pivots *t*, *t*: these rollers lie horizontally, one above another, and are of such a length as to reach from the valve to the key: *a*, *a*, *a*, are arms or levers fixed to the key-rollers: *w*, *w*, the valve-wires fixed to the arms *a*, *a*, and to the valves V, and go through the holes *h*, *h*, in the bottom of the wind-chest: *b*, *b*, *b*, are likewise arms fixed to the key-rollers: *d*, *d*, *d*, the key-wires, fixed to the arms *b*, *b*, and to the keys C, D, E. Now, when the end of any one of the keys C, D, E, is put down, it pulls down the arm *b*, by the wire *d*, which turns about the roller *s* with the arm *a*, that pulls down the wire *w*, which opens the valve that is shut by the spring as soon as the pressure is taken off the key. In this construction there must be a worm spring fastened to the key, and to the bar W on the further side, to keep down the end 5 of the key.

Another method of opening the valves is thus: *x y*, *x y*, are slender levers, moveable on the centres 1, 1; 5 *x*, 5 *x*, are wires going from the further ends of the keys to the ends *x* of the levers; *y* V, *y* V, are other wires, reaching from the ends *y* of the levers, through the holes *h*, to the valves V. So that putting down the key C, D, &c. raises the end 5, which thrusts up the end *x* of the lever, by the wire 5 *x*; this depresses the end *y* of the lever, which pulls down the wire *y* V, and opens the valve V.

A third way of opening the valve is this: At the end of the key *b*, is a lever 8, 9, moving in the centre 7. This makes, with the key, a compound lever. From the end 9, a wire goes to the valve. Now the putting down the end 6 of the key, raises the end 8, which depresses the end 9, of the lever 8, 9, pulls down the wire, and opens the valve. There is only one of these drawn in the scheme, and but a few of the others, to avoid confusion.

R, R, are the rollers, to move the sliders, by help of the arms *c f*, *c f*, which are fixed horizontally in these rollers: *k e*, *k e*, are also levers fixed in the rollers; *l e*, *l e*, are the handles, which lie horizontally, and pass through the holes *l l*; they are fastened to the lever *k e*, being moveable about a joint at *e*. Organ.

Now, any handle *l p*, being drawn out, pulls the end *e* towards *l*, which turns about R *k*, along with the arm *c f*; and the end *f* pulls out the slider *f g*; and when *p* is thrust in, the arm *c f* likewise thrusts in the slider *f g*.

Upon the several rows of holes which appear on the top of the upper board, there are set up an equal number of rows of pipes. The pipes of an organ are of two kinds; the one has a mouth like a flute, the other with reeds. The first, called *pipes of mutation*, consist, (1.) of a foot AABB (fig. 3.), which is a hollow cone, that receives the wind that is to sound the pipe: (2.) To this foot is fastened the body of the pipe BBDD. Between the foot and the body of the pipe is a diaphragm or partition FEF, that has a long but narrow aperture, by which the wind comes out; over this aperture is the mouth BBC, whose upper lip C, being level, cuts the wind as it comes out.

The pipes are of pewter, of lead mixed with a twelfth part of tin, and of wood. Those of pewter are always open at their extremities: their diameter is very small, and their sound very clear and shrill. Those of lead mixed with tin are larger; the shortest are open, the longest quite stopped; those of a mean size are partly stopped, and have beside a little ear on each side the mouth, to be drawn closer or set further asunder, in order to raise or lower the sound. The wooden pipes are square, and their extremity is stopped with a valve or tampion of leather. The sound of the wooden and leaden pipes is very soft; the large ones stopped are commonly of wood, the small ones of lead. The longest pipes give the gravest sound, and the shortest the most acute: their lengths and widths are determined by a fixed proportion to their sounds; and their divisions are regulated by a rule, which is called the *diapason*. The longest has commonly 16 feet; but in very large organs it has 32 feet. The pedal tubes are always open, though made of wood and of lead. Whatever note any open pipe sounds, when its mouth is stopped, it will sound an octave lower; and a pipe of twice its capacity will likewise sound an octave lower.

A reed-pipe consists of a foot AABB (fig. 4.), that carries the wind into the shallot or reed CD, which is a hollow demi-cylinder, fitted at its extremity D, into a sort of mould, by a wooden tampion G. The shallot is covered with a plate of copper KKLL, fitted at its extremity II, into the mould, by the same wooden tampion. Its other extremity KK is at liberty: so that the air entering the shallot makes it tremble or shake against the reed; and the longer that part of the tongue IL, which is at liberty, is made, the deeper is the sound. The mould II, that serves to fix the shallot or reed, the tongue, tampion, &c. serves also to stop the foot of the pipe, and make the wind go out wholly at the reed. Lastly, in the mould is soldered the tube HH, whose inward opening is a continuation of that of the reed: the form of this tube is different in different ranks of pipes. The degree of acuteness or gravity in the sound of a reed pipe, depends on the length of the tongue, and that of the pipe CK, taken from the extremity of the shallot to the extremity of the tube. The quantity or intention of the sound depends on the width of the reed, the

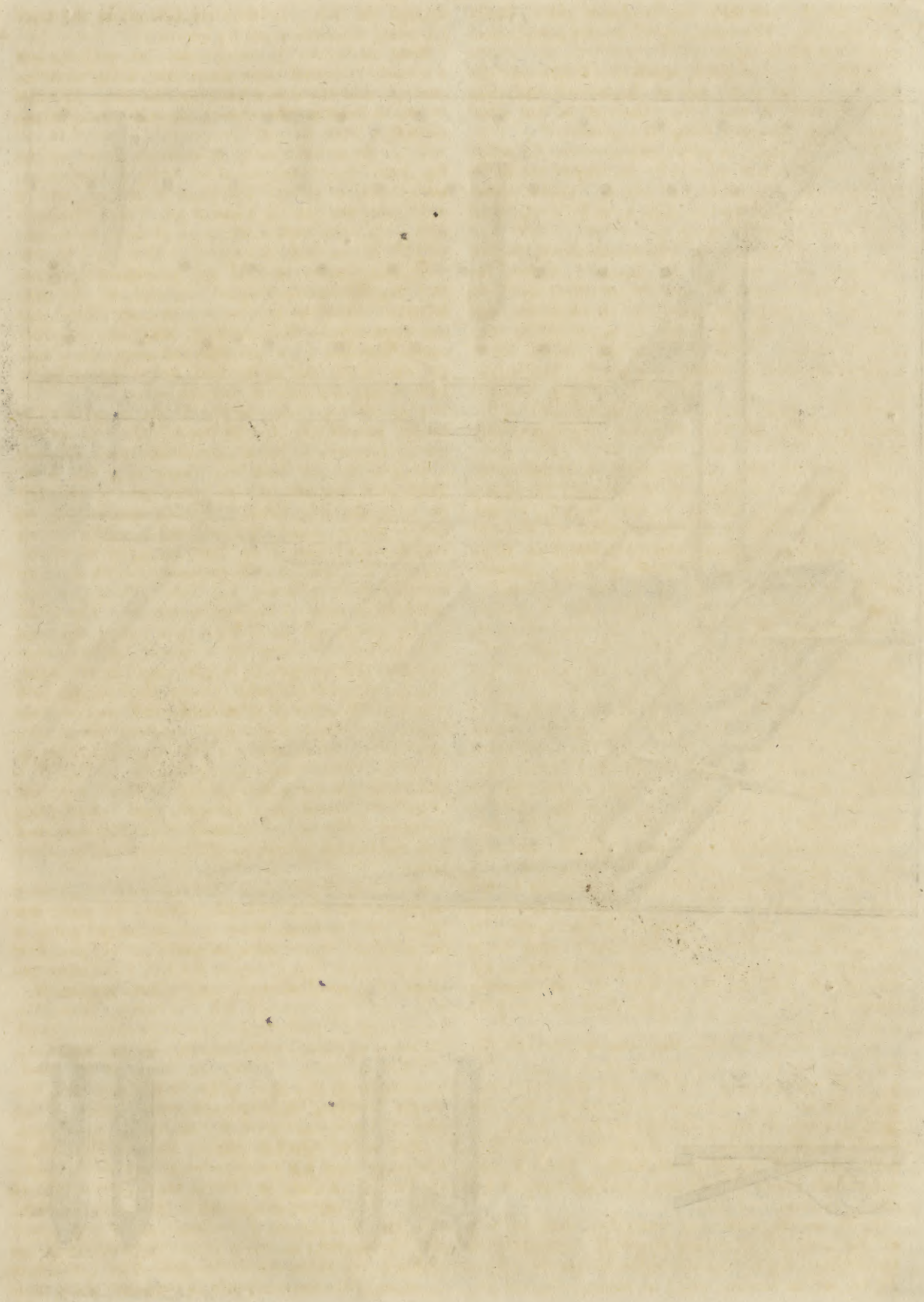


Fig. 1.

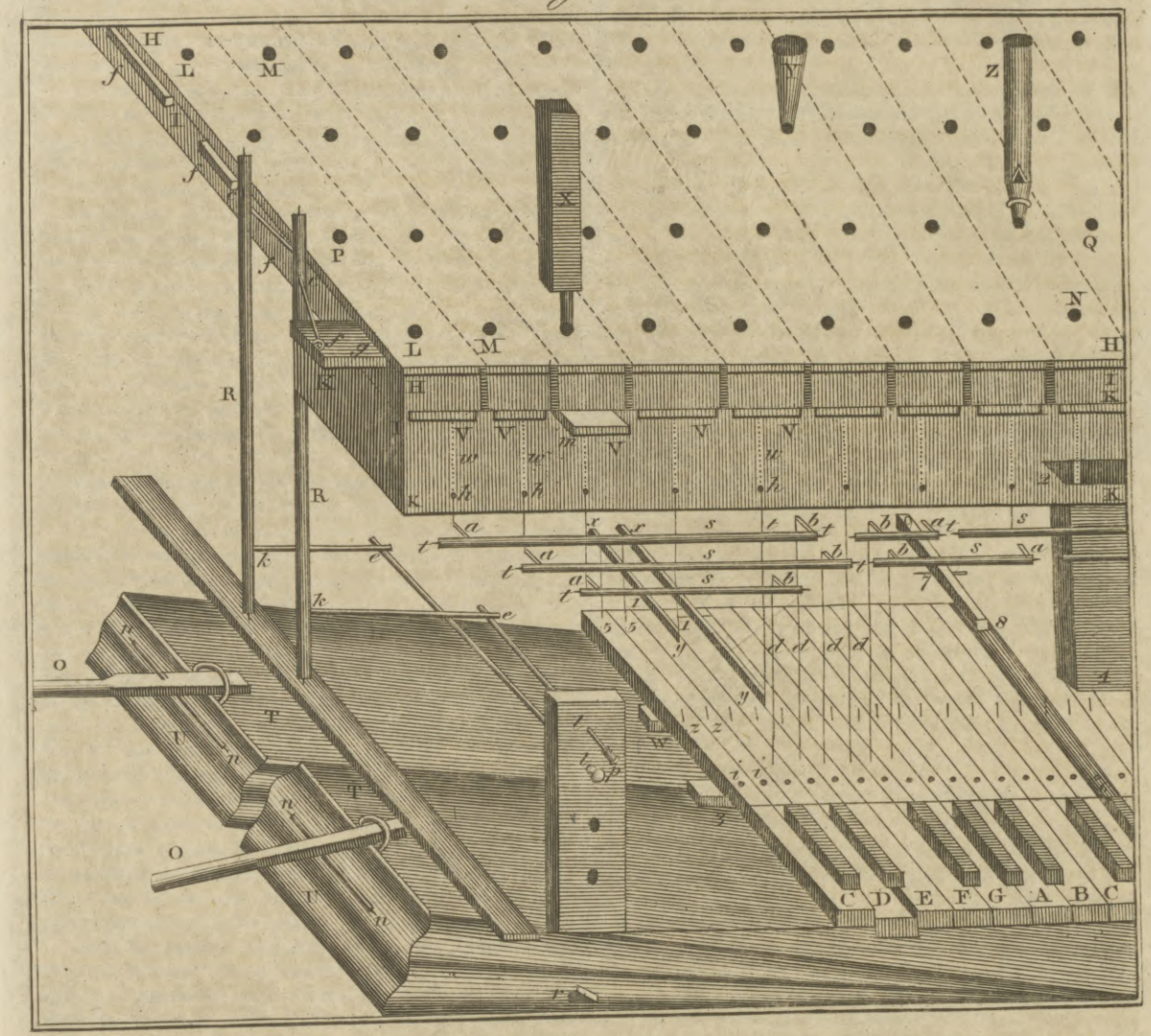


Fig. 2.

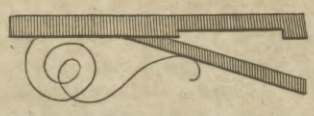


Fig. 3.

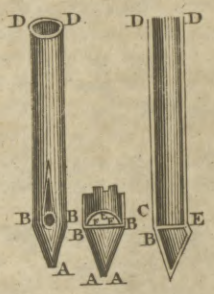
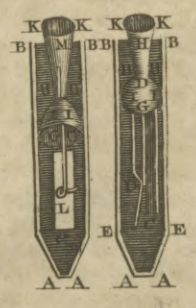


Fig. 4.



A. Bell Prin. Wal. Sculptor fecit.

Organ. the tongue, and the tube; as alſo on the thickneſs of the tongue, the figure of the tube, and the quantity of wind. To diverſify the ſounds of the pipes, a valve is added to the port-vent, which makes the wind go out in fits or ſhakes. In fig. 1. X repreſents a flute-pipe of wood, Z a flute-pipe of metal, Y a trumpet-pipe of metal. The pipes, to prevent them from falling, paſs through holes made in boards, placed upon the upper board.

The pipes are made to communicate with the wind-cheſt in the following manner. There are holes bored that go through the upper and lower boards, and through the ſlider (when it is drawn out), into the partition below; ſo that any pipes placed upon thoſe holes will then communicate with the partition, which by its valve, communicates with the wind-cheſt. But when the ſlider is thruſt in, its holes do not anſwer to thoſe in the upper and lower boards; therefore, the communication is ſtopped, ſo that no wind can get to the pipe.

To every large organ there muſt be at leaſt two pair of bellows, which are marked in fig. 1. by TU, TU. Plate CCCXCI. O, O, are the handles, moving upon the axis *n n*, *n n*. Each of theſe bellows conſiſts of two boards, the loweſt of which is immoveable; and in this there is a valve *r*, opening inwards, and a tube leading to it, called the *conveying tube*. There is alſo a hole in this under board, from which a tube leads to the port-vent, which is a ſquare tube marked 4, riſing upward, and inſerted into the under ſide of the wind-cheſt at 2. In the tube leading to the port-vent, there is a valve that opens towards the port-vent, and ſuffers the air to go up the port-vent, but not to return. Now the handle O being pulled down, raiſes the upper board T, and the air enters through the valve *r*; and when the handle is let go, the weight of the upper board, which carries three or four pounds to every ſquare foot, continually deſcending, drives the air through the port-vent to the ſound-board: and as the bellows work alternately, one pair is conſtantly deſcending, which occaſions a continual blaſt through the port-vent. In chamber-organs there is but one pair of bellows; but they are formed of three boards, in the manner of a ſmith's bellows, and ſo have a continual blaſt. All the internal ſtructure of the organ is concealed from the ſight by the front of the inſtrument, which ſtands upon the part between the numbers 3 and 6 (fig. 1.).

In every organ, the number of partitions LL, MM, &c. there are in the ſound-board (fig. 1.), that of the valves VV, that of the rollers *s s*, or of the levers *x y* or 8 9 and their wires, and that of the keys ABC, &c. muſt be always equal. Large organs have commonly four or five ſets of keys, beſide thoſe that belong to the pedals or large pipes, the ſtops to which are played by the feet; ſaid to be the invention of Bernard, a German, about the year 1400. Theſe command certain pipes, which, to increaſe the harmony, are turned below the diapaſon. The keys of an organ are uſually divided into four octaves; which are, the firſt ſub-octave, ſecond ſub-octave, middle octave, and firſt octave. Each octave is divided into 12 ſtops or frets, of which ſeven are black and five white; the former mark the natural notes, and the latter the artificial notes, that is, flats and ſharps. The number of keys, therefore, when there are four octaves, muſt be 48. Some organiſts add one or more ſtops to the firſt and ſecond ſub-octaves. The pedals have two or three octaves, at the option of the organiſt; ſo that the number of ſtops is indeterminate. The keys are placed between GG (fig. 1.), but the ſcheme could not contain them all. There are alſo as many handles *l*, *l*, &c. rollers RR, &c. ſliders *f*, *f*, &c. as there are ſtops upon the organ; and it muſt be obſerved, that between the ſliders *f*, *f*, &c. there are as many ſliders on the right hand, and the ſame number of handles and rollers, and other rows of pipes placed between LN, PQ, which could not be expreſſed in the figure. Organ.

The leaſt pipes and partitions are placed toward the middle of the organ, and the greateſt on the outſide. The ſtops of an organ have various denominations, according to the ſounds they are to produce; ſome of which are diapaſon, principal, fifteenth, twelfth, tearce, cornet, trumpet, French horn, vox humana, flute, baſſoon, cremona, &c. The foreign organs, eſpecially thoſe of Germany, have many more: particularly that in the abbey church of Weingarten, a town in the Upper Palatinate, which has 66 ſtops, and contains no fewer than 6666 pipes. The organ at Haerlem is ſaid to have 60 ſtops, many of them but little known to the Engliſh workmen, and diſtinguiſhed by names that expreſs the ſound which they produce.

When this magnificent inſtrument is played, the handle O of the bellows is firſt put down, which raiſes the upper board T, and gives room for the air to enter by the valve *r*. Then the other handle O is put down: In the mean time the board T, belonging to the firſt handle, deſcending, and ſhutting the valve *r*, drives the air through the other valve, up the port-vent, and into the wind-cheſt. Then drawing out any handle, as that of the flute-ſtop *p l*, which draws out the ſlider *f g*, all the pipes in the ſet LN are ready to play, as ſoon as the keys C, D, E, &c. are put down: therefore if the key D be put down, it opens the correſponding valve *m* V, through which the air enters into the pipe X, and makes it ſound. In the ſame manner any other pipe in the ſet LN, will ſound when its key is put down; but no pipe, in any other ſet, will ſound till the ſlider be drawn out by its correſponding handle.

Among the modern improvements of the organ, the moſt remarkable are the ſwell and the tremblant: the former, invented by an Engliſh artiſt, conſiſts in a number of pipes placed in a remote part of the inſtrument, and incloſed in a kind of box, which being gradually opened by the preſſure of the foot, increaſes the ſound as the wind does the ſound of a peal of bells, or ſuppreſſes it in like manner by the contrary action. The tremblant is a contrivance by means of a valve in the port-vent or paſſage from the wind-cheſt, to check the wind, and admit it only by ſtarts; ſo that the notes ſeem to ſtammer, and the whole inſtrument to ſob, in a manner very offenſive to the ear. There is a tremblant in the organ at the German chapel in the Savoy. See Hawkins's *Hiſtory of Muſic*, and Burney.

Hydraulic ORGAN, denotes a muſical machine that plays by water inſtead of wind. Of theſe there are ſeveral in Italy, in the grottoes of vineyards. Cteſebes of Alexandria, who lived in the time of Ptolemy Euergetes, is ſaid to have invented organs that played by compreſſing the air with water, as is ſtill practiſed. Archimedes

Orgaſm || Oribaſia

medes and Vitruvius have left us deſcriptions of the hydraulic organ.

In the cabinet of Queen Chriſtina is a beautiful and large medallion of Valentinian, on the reverſe whereof is ſeen one of theſe hydraulic organs; with two men, one on the right, the other on the left, ſeeming to pump the water which plays it, and to liſten to its ſound. It has only eight pipes, placed on a round pedeſtal. The inſcription is PLACEA SPETRI, if it be not wrong copied, which we ſuſpect to be the caſe.

ORGASM, ὀργασμος, denoting violence or turgeſcency; formed from ὀργαω, *turgeo*, "I ſwell," an ecſtaſy or impetuous deſire of coition, occaſioned by a turgeſcency of the ſeminal veſſels, which are no longer able to reſtrain their contents. The ancients alſo extend orgaſm to the other humours, and even excrements, which being accumulated, and coming to ferment, demand excretion. Quincy uſes orgaſm for an impetuous or too quick motion of the blood or ſpirits; whereby the muſcles are diſtended with an uncommon force.

ORGIA, feaſts and ſacrifices in honour of Bacchus, held every third year, and chiefly celebrated by wild diſtracted women, called *Bacchæ*. The chief ſolemnities were performed in the night, to conceal, perhaps, their ſhocking impurities; and a mountain was generally choſen as the place of celebration. They were inſtituted by Orpheus; and from him are ſometimes called *Orphica*. Authors are not agreed as to the derivation of the word; but if we conſider the frantic proceedings of the Bacchanalians, ὀργη, *furor*, bids fair for the true etymology. See BACCHANALIA.

Orgia, according to Servius, was a common name for all kinds of ſacrifices among the Greeks, as *ceremoniæ* was amongſt the Romans.

ORGUES, in the military art, are thick long pieces of wood, pointed at one end, and ſhod with iron, clear one of another; hanging each by a particular rope or cord, over the gateway of a ſtrong place, perpendicularly, to be let fall in caſe of the approach of an enemy.

Orgues are preferable to herſes, or portcullices, becauſe theſe may be either broke by a petard, or they may be ſtopped in their falling down: but a petard is uſeleſs againſt an orgue; for if it break one or two of the pieces, they immediately fall down again and fill up the vacancy; or if they ſtop one or two of the pieces from falling, it is no hinderance to the reſt; for being all ſeparate, they have no dependence upon one another.

ORGUES, is alſo uſed for a machine compoſed of ſeveral harquebuſs or muſket barrels bound together, by means whereof ſeveral exploſions are made at the ſame time. It is uſed to defend breaches and other places attacked.

ORGYA, ὀργυια, an ancient Grecian meaſure containing ſix feet.

ORIBASIA, a genus of plants belonging to the pentandria claſs, and in the natural method ranking under the 47th order, *Stellatæ*. See BOTANY *Index*.

ORIBASUS, a celebrated phyſician greatly eſteemed by the emperor Julian, in whoſe reign he flouriſhed. He abridged the works of Galen, and of all the moſt reſpectable writers on phyſic. This was done at the requeſt of the emperor. He accompanied Julian into the eaſt, but his ſkill proved ineffectual in attempting to cure the fatal wound which his benefactor had received. After Julian's death he fell into the hands of the barbarians.

Oribaſius. Orichalcum.

ORICHALCUM, or AURICHALCUM, a metallic ſubſtance reſembling gold in colour, but very inferior in value. It was well known to the old Romans, who often took advantage of its reſemblance to gold: for ſome ſacrilegious characters, who could not reſiſt the temptation of taking gold from temples and other public places, choſe to conceal their guilt by replacing it with orichalcum. It was thus that Julius Cæſar acted when he robbed the capitol of 3000 pounds weight of gold; in which he was followed by Vitellius, who deſpoiled the temples of their gifts and ornaments, and replaced them with this inferior metal. It has been a matter of diſpute with philoſophers and others, what this metal could be, or how it was procured or made; it is probable at leaſt that it was greatly analogous to our braſs, if not wholly the ſame with it (See BRASS). The value of our braſs is much leſs than that of gold, and the reſemblance of braſs to gold, in colour, is obvious at firſt ſight. Both braſs and gold, indeed, are ſuſceptible of a variety of ſhades of yellow; and, if very pale braſs be compared with gold, mixed with much copper, ſuch as the foreign goldſmiths, eſpecially, uſe in their toys, a diſparity may be ſeen; but the nearneſs of the reſemblance is ſufficiently aſcertained in general, from obſerving that ſubſtances gilded with braſs, or as it is commonly called *Dutch leaf*, are not eaſily diſtinguiſhed from ſuch as are gilded with gold leaf.

The Romans were not only in poſſeſſion of a metallic ſubſtance, called by them *orichalcum*, and reſembling gold in colour, but they knew alſo the manner of making it, and the materials from which they made it were the very ſame from which we make braſs. There are, indeed, authors of great repute who think very differently; and who conſider the art of making braſs as an invention wholly modern. Thus M. Cronſtedt does not think it juſt to conclude from old coins and other antiquities, that it is evidently proved that the making of braſs was known in the moſt ancient times *; and the authors of the French Encyclopedié aſſure us, that our braſs is a very recent invention (A). It appears, however, from Pliny's Nat. Hiſt. lib. xxxiv. §. 2. and from the concurring teſtimony of other writers, that orichalcum was not a pure or original metal; but that its baſis was copper, which the Romans changed into orichalcum by means of *cadmia*, a ſpecies of earth which they threw upon the copper, and which it abſorbed. It has indeed been contended, that the cadmia of Pliny was native arſenic; an opinion which ſcarcely merits confutation, but which muſt appear extremely groundleſs, when we reflect

* *Miner.* p. 218.

(A) Art. Orichalque.—"The veſſels here called brazen, after ancient authors, cannot have been of the materials our preſent braſs is compoſed of; the art of making it is a modern diſcovery." See *Laughton's Hiſtory of Ancient Egypt*, p. 58.

Orichalcum.

reflect that it is impoſſible to make either braſs or copper from arſenic, and that Pliny expreſsly calls it a *ſtone* from which braſs was made. The teſtimony of Ambroſe biſhop of Milan, in the 4th century, and of Primáſius biſhop of Adrumetum, in Africa, in the 6th, and of Iſidorus biſhop of Seville in the 7th, all ſeem to confirm Pliny's account. We may therefore ſafely conclude that the Romans knew the method of making braſs by mixing *cadmia* or *calamine* with copper; yet it is probable they were not the inventors of this art, but that they borrowed it from ſome other country. It appears from a variety of teſtimonies that braſs was made in Aſia, in a manner very ſimilar to that at Rome; and a variety of places are mentioned in that extenſive country where it was commonly made; and it is ſuppoſed by ſome that in India, as well as in other parts of Aſia, it was made in the remoteſt ages.

With reſpect to orichalcum, it is generally ſuppoſed that there were two ſorts of it, one factitious, the other natural. The factitious, whether we conſider its qualities or compoſition, appears to have been the ſame with our braſs. As to the natural orichalcum, there is no impoſſibility in ſuppoſing, that copper ore may be ſo intimately blended with an ore of zinc, or of ſome other metallic ſubſtance, that the compound, when ſmelted, may yield a mixed metal of a paler hue than copper, and reſembling the colour of either gold or ſilver. In Du Halde's hiſtory of China, we meet with the following account of the Chineſe white copper. "The moſt extraordinary copper is called *de-tong*, or white copper: it is white when dug out of the mine, and ſtill more white within than without. It appears by a vaſt number of experiments made at Pekin, that its colour is owing to no mixture; on the contrary all mixtures diminiſh its beauty; for, when it is rightly managed, it looks exactly like ſilver: and were there not a neceſſity of mixing a little *tutenag*, or ſome ſuch metal with it, to ſoften it and prevent its brittleneſs, it would be ſo much the more extraordinary, as this ſort of copper is perhaps to be met with nowhere but in China, and that only in the province of *Yun-nan**." Notwithſtanding what is here ſaid, of the colour of this copper being owing to no mixture, it is certain that the Chineſe white copper, as brought to us, is a mixed metal; ſo that the ore from which it is extracted muſt conſiſt of various metallic ſubſtances, and from ſome ſuch ore it is poſſible that the natural orichalcum, if ever it exiſted, may have been made. But, notwithſtanding that the exiſtence of natural orichalcum cannot be ſhown to be impoſſible, yet there is ſome reaſon to doubt whether it ever had a real exiſtence or not.

* *Fol. Tranſ.* vol. i. p. 16.

We know of no country in which it is found at preſent; nor was it anywhere found in the age of Pliny; nor does he ſeem to have known the country where it ever had been found. He admits, indeed, its having been formerly dug out of the earth; but it is remarkable, that in the very paſſage where he is mentioning by name the countries moſt celebrated for the production of different kinds of copper, he only ſays in general concerning orichalcum, that it had been found in other countries, without ſpecifying any particular country. Plato acknowledges, that orichalcum was a thing only talked of even in his time; it was nowhere then to be met with, though in the iſland of Atlantis it had been formerly extracted from its mine. The Greeks were in poſſeſſion of a metallic ſubſtance, called *orichalcum*, before the foundation of Rome; for it is mentioned by Homer and by Heſiod; and by both of them in ſuch a manner as ſhows that it was then held in great eſteem. Other ancient writers have expreſſed themſelves in ſimilar terms of commendation; and it is principally from the circumſtance of the high reputed value of orichalcum that authors are induced to ſuppoſe the ancient orichalcum to have been a natural ſubſtance, and very different from the factitious one in uſe at Rome, and probably in Aſia, and which it has been ſhown was nothing different from our braſs.

Orichalcum in Origen.

But this concluſion cannot be validly drawn from their encomiums upon it; for at whatever time the method of making it was firſt diſcovered, both its novelty and ſcarceneſs, joined to its utility, would enhance its value, at leaſt there can be no abſurdity in ſuppoſing, that when firſt introduced it was greatly prized, even though it be granted that it poſſeſſed no other properties than ſuch as appertain to braſs.

Reſpecting the etymolgy of the word there is great diverſity of opinions. Thoſe who write it *aurichalcum* think it is compoſed of the Latin word *aurum*, "gold." and the Greek χαλκος "braſs or copper." The moſt general opinion is, however, that it is compoſed of ὀρος "a mountain" and χαλκος, alluding perhaps to its being found in mountains or mountainous countries. The above account is chiefly extracted from a paper in the ſecond volume of Memoirs of the Literary and Philoſophical Society of Mancheſter, written by the preſent biſhop of Landaff, Dr Watſon, and communicated by Dr Percival. To this paper then we refer our readers who deſire a more copious account of it. To the above two etymological meanings of the word we ſhall ſubjoin the following, mentioned by the learned biſhop, and which, in our opinion, is equally well founded, and certainly as ingenious, as the other two.

The Hebrew word *Or*, *Aur*, ſignifies light, fire, flame; the Latin terms *uro* "to burn," and *aurum* "gold," are derived from it, inaſmuch as gold reſembles the colour of flame: and hence it is not improbable, that orichalcum may be compoſed of an Hebrew and Greek term, and that it is rightly rendered, *flame-coloured copper*. In confirmation of this it may be obſerved, that the Latin epithet *lucidum*, and the Greek one φαεινον, are both applied to orichalcum by the ancients. See alſo *Beckmann, Hiſt. of Invent.* iii. 71.

ORIFICE, the mouth or aperture of a tube, pipe, or other cavity.

ORIGANUM, ORIGANY, or *Marjoram*, a genus of plants belonging to the didynamia claſs, and in the natural method ranking under the 42d order, *Verticillatæ*. See BOTANY *Index*.

ORIENT, a town and harbour of France, in the department of Morbihan, in the bottom of the bay of St Louis. Since the year, 1720, a handſome town has been built here, where the French Eaſt India company have large magazines. The Engliſh attempted to become maſters of it in 1746, but miſcarried. W. Long. 3. 22. N. Lat. 47. 45.

ORIENTAL PHILOSOPHY. See PHILOSOPHY.

ORIGEN, one of the moſt celebrated eccleſiaſtical writers, greateſt geniuſes, and moſt learned men of the

Origen. the primitive church, during the third century, was born at Alexandria in the year 185: and was furnamed *Adamantus*, either from his indefatigable application to ſtudy, or from the firmneſs he diſcovered amidſt the torments he ſuffered for the faith. Leonidas, his father, trained him at home with great care, and made him apply to the ſtudy of the Holy Scriptures from his infancy, in which he made ſurpriſing progreſs. The ſon's inclination and turn ſuited exactly with the father's deſign; for he purſued his ſtudies with a moſt extraordinary zeal and ardour: and, being endued with a quick apprehenſion and a ſtrong imagination, did not content himſelf with that ſenſe which at firſt preſented itſelf, but farther endeavoured to dive into myſterious and allegorical explications of the ſacred books. He would ſometimes even puzzle his father, by too much ſoliciting him for recondite meanings; which obliged the good man to reprehend him a little, and withal to adviſe him not to attempt to penetrate too far in the ſtudy of the Holy Scriptures, but to content himſelf with their moſt clear, obvious, and natural ſenſe. Hence it appears, how early he was ſeized with that *furor allegoricus*, as a learned modern calls it, that rage of expounding the Scriptures allegorically, which grew afterwards to be even a diſtemper, and carried him to exceſſes which can never be excuſed (A). He had afterwards in philoſophy Ammonius the celebrated Chriſtian philoſopher, and St Clement of Alexandria for his maſter in divinity. At 18 years of age he ſucceeded that great man in the office of catechiſt; an important employment, which conſiſted in teaching divinity, and expounding the Scriptures. Leonidas his father had ſuffered martyrdom the year before, during the perſecution of Severus in 202; and Origen had ſhown ſuch eagerneſs to follow his father to martyrdom, that his mother was obliged to hide his clothes to prevent his going abroad. Origen had a great concourſe of auditors who attended his ſchool, ſome of whom were of the faithful, and the others pagans. He confirmed and ſtrengthened the firſt in their faith, and converted moſt of the others; and there were ſuch a number of martyrs amongſt his diſciples, that it might be ſaid, that he kept rather a ſchool of martyrdom than of divinity. He taught the doctrines of Chriſtianity to the girls and women as well as to the men; and taking in a too literal ſenſe what Chriſt ſays of becoming voluntary eunuchs, caſtrated himſelf, to prevent his deſerving or ſuffering ſcandal. He took a voyage to Rome in 211, in the beginning of Caracalla's reign, under the pontificate of Zepherinus. At his return he publiſhed many works, by which he acquired an extraordinary reputation, that drew to him a great number of auditors. But Demetrius, biſhop of Alexandria, conceiving a jealouſy of him, endeavoured by various pretences to injure him. At length Origen went to Antioch, whether the empreſs Mammæa had ſent for him to hear him diſcourſe on the Chriſtian religion. He did not however ſtay long there, but returned to Alexandria, where he continued to teach till the year 228, when he left that city, and travelled into Achaia. In that journey he went into Paleſtine, and was ordained by the biſhops of that province at 42 years of age. His being ordained by foreign biſhops, without the permiſſion of Demetrius, renewed that prelate's reſentment againſt him; on which Origen haſtily returned to Alexandria, to endeavour to mollify him: but Demetrius drove him from thence in 231, and cauſed him to be excommunicated, and even depoſed in a council held in Egypt. Origen then retired to Cæſarea in Paleſtine, where he raiſed a celebrated ſchool, and had St Gregory Thaumaturgus, and a great number of other perſons who were illuſtrious for their virtue and learning, for his diſciples. He afterwards travelled to Athens; and then, at the deſire of Firmilianus, ſtaid ſome time at Cæſarea in Cappadocia; whence he was invited into Arabia, to convince and bring back to the truth Beryllus biſhop of Boſtra; who maintained that the Word had no exiſtence before his incarnation. Origen had the happineſs to make him ſenſible of his miſtake; and ſome years after was ſent for into Arabia by an aſſembly of biſhops, to diſpute againſt the Arabians, who maintained that the ſouls of the dead remained in a ſtate of inſenſibility till the general reſurrection. At length the ſeventh perſecution of the Chriſtians began in the reign of Decius, and none were uſed with greater ſeverity than Origen. He ſupported with incredible conſtancy the dreadful torments which the perſecutors of the Chriſtians invented againſt them; torments that were the more inſupportable, as they were made to continue a long time, and as they took the greateſt care to prevent his expiring in the midſt of his tortures: but in the midſt of the moſt excruciating torments, he diſcovered an heroic courage, and ſuffered nothing to eſcape him that was unworthy a diſciple of Jeſus Chriſt. He died at Tyre in 254, aged 69. He was the author of a great number of excellent works. The principal of thoſe which have been handed down to us are, 1. A Treatiſe againſt Celſus, of which Spencer has given a good edition in Greek and Latin, with notes: this learned treatiſe has been tranſlated into French by Elias Bouhereau, a proteſtant miniſter, born at Rochelle. 2. A great number of Homilies, with Commentaries on the Holy Scriptures. 3. *Philocalia*, and ſeveral other

(A) He is the firſt Chriſtian (whoſe notions on this ſubject have come down to us) who believed in the reſtitution of all things. This is his ſixth diſtinguiſhing tenet; to which is added this ſingular notion, that as Chriſt had been crucified in this world to ſave mankind, he is to be crucified in the next to ſave the devils. The other obnoxious tenets of Origen are theſe five: viz. 1. That in the Trinity the Father is greater than the Son, and the Son than the Holy Ghoſt. 2. The pre-exiſtence of ſouls, which Origen conſidered as ſent into mortal bodies for the puniſhment of ſins committed in a former ſtate of being. 3. That the ſoul of Chriſt was united to the world before the incarnation. 4. That the ſun, moon, and ſtars, &c. were animated and endowed with rational ſouls. 5. That after the reſurrection, all bodies will be of a round figure. It is probable that the myſtic theology of the modern Quakers and other ſects is derived from Origen. See *Moſheim. Eccl. Hiſt.* vol. 1ſt.

Origen. other treatiſes. 4. Fragments of his Hexaples, collected by Father Montfaucon, in two volumes folio. Of all Origen's books, the loſs of the Hexaples is moſt to be regretted. This work was thus named from its containing ſix columns; in the firſt of which was the Hebrew text of the Bible; in the ſecond, the ſame text in Greek characters; in the third, the Greek verſion of the Septuagint; in the fourth, that of Aquila; in the fifth, that of Symmachus; and in the ſixth Theodoſian's Greek verſion. This admirable work gave the firſt hint for our Polyglot Bibles. 5. The book of Principles; of which we have only an incorrect Latin verſion. In all his writings he diſcovers a ſurpriſing degree of modeſty, candour, and humility; a noble and ſublime genius, profound learning, and vaſt erudition. His manners were extremely pure, and he had a warm zeal for ſpreading the truths and morals of the Goſpel.

Much has been written both for and againſt this celebrated father, both by his contemporaries and others: he has indeed ſuffered great abuſe, which he did not deſerve, and which we ſhall not retail; contenting ourſelves with the following account of his character by Dupin, and ſome remarks on it by Dr Jortin. "Origen (ſays Dupin) had very quick parts, a very ſtrong and enlarged imagination; but he relied too much on the vivacity of his genius, and often loſt himſelf, out of too great earneſtneſs to fathom and ſubtiliſe every thing. He had a very happy invention, and a more happy delivery of what he invented: but he had not that exactneſs in his inventions, nor that gracefulneſs of delivery as might be wiſhed. He carried on his works with ſo great eaſe, that he is ſaid to have dictated to ſeven or eight perſons at a time; and he was ſo ready in expreſſing himſelf, that he made the greateſt part of his homilies extempore: upon which account his ſtyle was not very correct or coherent. He had a vaſt memory, but often truſted too much to it. He was a perſon of moſt profound learning: he particularly ſtudied Plato's philoſophy, and was indeed too much addicted to it for a Chriſtian. He underſtood likewiſe the doctrines of other philoſophers. He applied himſelf mightily to the ſtudy of human learning. He was neither ignorant of hiſtory nor mythology; and he had as great a knowledge in all the profane ſciences, as thoſe who ſtudied nothing elſe. But he particularly excelled in the knowledge of the Holy Scriptures, which he learned all by heart; and that he might neglect nothing for attaining a right underſtanding of the letter thereof, he carefully examined all the verſions of the Bible, and compared them all together with the Hebrew text, ſubjoining a literal commentary upon the moſt difficult places. He was not very well ſkilled in the Hebrew; yet he knew enough of it to underſtand it, and to obſerve the difference of the text and the tranſlations. Nevertheleſs, he did not adhere to the literal explication of the Bible, but thought it neceſſary, for the ſake of gaining it credit with the heathens, who deſpiſed its plainneſs and ſimplicity, and of rendering it more uſeful to the world, to give myſtical and allegorical interpretations of every thing in it."

Bibl Aut. Eccleſ. tom. i.

Dr Jortin tells us, "That Origen was very learned and ingenious, and indefatigably induſtrious. His whole life from his early years was ſpent in examining, teaching, and explaining the Scriptures; to which he joined the ſtudy of philoſophy and of all polite literature. He was humble, modeſt, and patient, under great injuries and cruel treatment, which he received from Chriſtians and Pagans: for though he ever had a conſiderable number of friends and admirers, on account of his amiable qualities and uſeful accompliſhments, he was perſecuted and calumniated by men, who had neither his learning nor his virtue, degraded from the order of preſbyters, driven from his home, and excommunicated by one Demetrius biſhop of Alexandria, who envied him, ſays Euſebius, for the reputation which he had gained. His inquiſitive genius, and his mixing philoſophy with Chriſtianity, led him perhaps into ſome learned ſingularities and ingenious reveries; but he was by temper far from dogmatizing in ſuch points, from fomenting ſchiſms, and ſetting up himſelf for the head of a party. He lived in times when Chriſtians were not ſo ſhackled with ſyſtems and determinations as they were afterwards, nor ſo much expoſed to diſingenuous and illiberal objections; and had more liberty to purſue their inquiries and to ſpeak their mind.—He was ever extremely ſober and exemplary, practiſing what he preached to others; and he lived and died poor, and deſtitute even of common conveniences."—The moſt complete edition of his works is that of Father Delarue, a Benedictine, in Greek and Latin. The celebrated Montfaucon likewiſe publiſhed, in 2 vols folio, ſome remains and fragments of his *Hexapla*.

Jortin's Remarks, vol ii. p. 234, 238.

He ought not to be confounded with another ORIGEN, a Platonic philoſopher, and the diſciple and friend of Porphyry, who ſtudied philoſophy under Ammonius: perhaps this Origen was the founder of the ORIGENIANS.

ORIGENIANS (*Origeniani*), ancient heretics, who even ſurpaſſed the abominations of the Gnoſtics.

Epiphanius ſpeaks of them as ſubſiſting in his time; but their numbers, he ſays, were inconſiderable. He ſeems to fix their riſe about the time of the great *Origen*; but does not ſay that they derived their name from him. On the contrary, he diſtinguiſhes them from the *Origeniſts*, whom he derives from *Origen Adamantius*; adding, indeed, that they firſt took their name from one *Origen*; by which he intimates, that it was not the great *Origen*. And St Auguſtine expreſsly aſſerts, that it was another. Their doctrines were ſhameful: they rejected marriage; they uſed ſeveral apocryphal books, as the acts of St Andrew, &c. and endeavoured to excuſe their open crimes, by ſaying, that the Catholics did the ſame in private.

ORIGENISTS, in church-hiſtory, a Chriſtian ſect in the fourth century, ſo called from their drawing their opinions from the writings of Origen. The Origeniſts maintained, that the ſouls of men had a pre-exiſtent ſtate: that they were holy intelligences, and had ſinned in heaven before the body was created: that Chriſt is only the Son of God by adoption; that he has been ſucceſſively united with all the angelical natures, and has been a cherub, a ſeraph, and all the celeſtial virtues one after another; that, in future ages, he will be crucified for the ſalvation of the devils, as he has already been for that of men; and that their puniſhment, and that of the damned, will continue only for a certain limited time.

ORIGINAL, a firſt draught or deſign of any thing, which ſerves as a model to be imitated or copied. Origenians || Original.

Original Sin || Orion.

ORIGINAL Sin, the crime of eating the forbidden fruit, of which, it is ſaid, all mankind are guilty at their conception, by the imputation of Adam's tranſgreſſion; which is accounted for by ſuppoſing, that Adam, as he was to be the father, was alſo the federal head and repreſentative, of the whole human race: and that, on his ſinning, all that were to ſpring from him partook of his crimes. See THEOLOGY, &c.

ORIGUELA, a town of Valentia in Spain. It is ſeated between the mountains on the banks of the river Segura, in a place fortified by nature, and in a fertile plain, abounding in all things, eſpecially corn. It is ſurrounded with pleaſant gardens, and has a univerſity and a biſhop's ſee. It is defended by an old caſtle; and is the capital of a government independent of Valentia, whoſe juriſdiction extends 30 miles in length and 15 in breadth. W. Long. 0. 56. N. Lat. 38. 22.

ORILLON, in *Fortification*, is a ſmall rounding of earth, faced with a wall; raiſed on the ſhoulder of thoſe baſtions that have caſemates, to cover the cannon in the retired flank, and prevent their being diſmounted by the enemy. See FORTIFICATION.

ORIOLUS, or ORIOLE, a genus of birds belonging to the order of piceæ. See ORNITHOLOGY *Index*.

ORION, in fabulous hiſtory, was the ſon of Jupiter, Neptune, and Mercury. For as theſe gods were viſiting the earth, they entered the houſe of Hyrieus, a native of Tanagra, in Bœotia, under the character of benighted travellers, on account of his being famed for hoſpitality to ſtrangers. Hyrieus treated them in the beſt manner in his power; and even killed an ox, the only one he had, for their entertainment. At which the gods were ſo pleaſed, that they offered the old man whatever he would aſk; who letting them know that he deſired nothing ſo much as a ſon, they, to gratify his wiſh, cauſed the ox's hide to be brought before them, in which, having depoſited their urine, they bade him keep it under ground for nine months. He then dug for the ſkin, and found in it a beautiful child, whom he called *Urion ab urina*. The name was afterwards changed into Orion by the corruption of one letter, as Ovid obſerves: *Perdidit antiquam litera prima ſonum*. Orion ſoon became conſpicuous; and Diana took him among her attendants, and even became deeply enamoured of him. His gigantic ſtature, however, diſpleaſed Oenopion king of Chios, whoſe daughter Hero or Merope he requeſted in marriage. The king, not willing to deny him openly, promiſed to make him his ſon-in-law as ſoon as he delivered his iſland from wild beaſts. This taſk, which Oenopion ſuppoſed to be impracticable, was ſoon performed by Orion, who eagerly demanded his reward. Oenopion, on pretence of complying, intoxicated his illuſtrious gueſt, and put out his eyes on the ſea-ſhore, where he had laid himſelf down to ſleep. Orion found himſelf blind when he awoke. He went, directed by the ſound, to a neighbouring forge, where he placed one of the workmen on his back, and by his directions went to a place where the riſing ſun was ſeen with the greateſt advantage. Here he turned his face towards the luminary; and, according to report, he immediately recovered his eye-ſight, and haſtened to puniſh the perfidious cruelty of Oenopion. Orion was reported to be an excellent workman in iron, and to have fabricated a ſubterraneous palace for Vulcan.

Aurora, whom Venus had inſpired with love, carried him away into the iſland of Delos, that ſhe might enjoy his company with greater ſecurity; but Diana, who was jealous of this, deſtroyed him with her arrows. Some ſay, that Orion had provoked Diana's reſentment, by offering violence to Opis, one of her female attendants; or, as others ſay, becauſe he had attempted the virtue of the goddeſs herſelf. According to Ovid, Orion died of the bite of a ſcorpion, which the earth produced to puniſh his vanity, in boaſting that no animal on earth could conquer him. Some ſay that Orion was ſon of Neptune and Euryale, and that he had received from his father the privilege and power of walking over the ſea without wetting his feet. Others aſſert, that he was a ſon of Terra, like the reſt of the giants. He had married a nymph called *Sida*, before his connection with the family of Oenopion; but Sida was the cauſe of her own death, by boaſting herſelf fairer than Juno. Diodorus ſays, that Orion was a celebrated hunter, ſuperior to the reſt of mankind, by his ſtrength and uncommon ſtature. He built the port of Zancle, and fortified the coaſt of Sicily againſt the frequent inundations of the ſea, by heaping a mound of earth called *Pelorum*, on which he built a temple to the gods of the ſea. After death Orion was placed in heaven, where one of the conſtellations ſtill bears his name. The conſtellation of Orion was placed near the feet of the bull. It was compoſed of 17 ſtars in the form of a man holding a ſword; for which reaſon the poets often ſpeak of Orion's ſword. As the conſtellation of Orion, which riſes about the 9th day of March, and ſets about the 21ſt of June, is generally ſuppoſed to be accompanied at its riſing with great rains and ſtorms, it has acquired the epithet of *aquoſus*, given it by Virgil. Orion was buried in the iſland of Delos; and the monument which the people of Tanagra in Bœotia ſhowed, as containing his remains, was nothing but a cenotaph. The daughters of Orion diſtinguiſhed themſelves as much as their father; and when the oracle had declared that Bœotia ſhould not be delivered from a dreadful peſtilence before two of Jupiter's children were immolated on the altars, they joyfully accepted the offer, and voluntarily ſacrificed themſelves for the good of their country. Their names were Menippe and Metioche. They had been carefully educated by Diana; and Venus and Minerva had made them very rich and valuable preſents. The deities of hell were ſtruck at the patriotiſm of theſe two females; and inſtantly two ſtars were obſerved to ariſe from the earth, which ſtill ſmoked with their blood, and they were placed in the heavens in the form of a crown. According to Ovid, their bodies were burned by the Thebans, and from their aſhes aroſe two perſons, whom the gods ſoon after changed into conſtellations.

Orion, Oriſtagni.

ORION, in *Aſtronomy*, one of the conſtellations of the ſouthern hemiſphere. The word is formed from the Greek ὄρειν, "to make water;" the ancients ſuppoſing that it raiſed tempeſts at its riſing and ſetting. The ſtars in the conſtellation Orion, in Ptolemy's catalogue are 37, in Tycho's 62, in the Britannic catalogue 80.

ORISTAGNI, an ancient town of the iſland of Sardinia, with an archbiſhop's ſee. It is pretty large and well fortified; but thinly inhabited, on account of the unhealthy air: it is ſeated on the weſtern coaſt,

in

Oriſtagni in a bay of the ſame name, in E. Long. 8. 58. N. Lat. 39. 55.
Orkney iſlands.

ORIXA, a kingdom of Indoſtan, lying on the gulf of Bengal. It is divided from the ancient kingdom of Golconda by a ridge of mountains, the end of which runs a little way into the ſea. It is fertile in corn and cattle, and they have ſeveral good towns and harbours on the coaſt; there are alſo manufactures of different kinds carried on throughout the kingdom. The prince is a Gentoo, who pays to the Great Mogul a tribute to the amount of about 12,000l. yearly.

ORIXA, a genus of plants belonging to the tetrandria claſs; and in the natural method ranking with thoſe that are doubtful. See BOTANY *Index*.

ORKNEY ISLANDS, called *Orcades* by the ancients, certain iſlands on the north of Scotland (A), from which they are ſeparated by a frith 20 miles in length and 10 in breadth. Orkney.

As writing ſeems to have been unknown in the northern iſlands, during thoſe periods which the antiquarian would call the moſt curious and important, the chief part of our information reſpecting the ancient ſtate of the Orkneys muſt be derived from tradition and conjecture. Their mountainous ſituation, and natural jealouſy of ſtrangers, obſtructed the progreſs both of knowledge and religion: for inſtead of receiving either from their ſouthern neighbours, we are certain that they derived their knowledge of Chriſtianity from Norway, during the expeditions undertaken by that nation (in the end of the 10th or beginning of the 11th century) to make ſettlements in the Orkneys and on the coaſt of Caithneſs (B). The beſt (becauſe it is in all

(A) The northern iſles of Scotland have been often mentioned by ancient authors, and called by different names from thoſe they now go by; ſo that it is ſometimes difficult to know which of them are meant. The ancient name, however, of the iſlands which are the ſubject of this article, has never been diſputed. The *Ebudæ*, it is agreed, are the modern Hebrides; and there is no doubt of the ancient Orcades being the ſame with the Orkneys. Of Thule, however, we are not ſo certain; and whether it means the Shetland iſles, or Iceland, remains undetermined. Pythias, a Maſſilian, pretends to have viſited theſe iſlands, and particularly Thule; but he does not mention the Orcades. The geographer Mela, who was contemporary with the emperor Claudius, is the next writer who deſcribes the northern iſlands. Of the Orkneys he gives a remarkably juſt account, and ſays they were thirty in number, with narrow channels between them; but he is leſs accurate with reſpect to the reſt. Pliny the Elder is the third who mentions the northern iſlands. He makes the number of the Orkneys to be forty, and of the Hebrides to be thirty. Solinus, the ſuppoſed contemporary with Agricola, is the next after Pliny. In his time, and according to his account, theſe iſlands had not a ſingle inhabitant, and were overgrown with ruſhy graſs. It ſeems on the whole to be pretty generally allowed, that Julius Agricola, who firſt ſailed round Britain, diſcovered the Orcades, till then unknown, and ſubdued them *. Claudius was ſo far from reducing them (as is aſſerted by Jerome in his Chronicle), that Juvenal has theſe lines in Hadrian's time:

Arma quid ultra
Littora Juvernæ promovimus et modo captas
Orcades, et minima contentos nocte Britannos. SAT. II. 160.

In vain, O Rome, thou doſt this conqueſt boaſt
Beyond the Orcades' ſhort-nighted coaſt. DRYDEN.

Tacitus informs us, that before the completion of the firſt century, the Roman fleets ſailed round Scotland, and landed in the Orcades to refreſh.

(B) It has been aſſerted, that the Orkneys, as well as the iſles of Shetland, were originally peopled from Norway, in the ninth, tenth, or eleventh century. Others again imagine, with as much probability, that the Picts were the original inhabitants, and call Orkney the ancient kingdom of the Picts. Certain ſingular houſes, now overgrown with earth, are called *Picts houſes;* and the Pentland frith (formerly *Pightland* or *Pictland*) is ſuppoſed to retain their name. Claudian's lines, cited by Mr Camden, prove, that the Picts, with ſome other German colony, particularly the Saxons, were at that time in poſſeſſion of theſe iſles; and ſo Ninnius expreſsly ſays. Many of the preſent inhabitants uſe the Norſe language, which differs but little from the Teutonic or Pictiſh language, and was in general uſe to the laſt century; but except in Foula, where a few words are ſtill known by the aged people, it is quite loſt. The Engliſh tongue, with a Norwegian accent, is that of theſe iſlands; but the appearance of the people, in their manners and genius, evidently ſhows their northern origin. Ninnius. c. 5. puts their arrival at Orkney not leſs than 900 years after the coming of Brutus into Britain, which he ſays was in the time of Eli the Jewiſh high prieſt. The ancient ſurnames are of German original. Some date the firſt ſettlement of the Picts here A. M. 4867; when, emigrating from their native country, they planted a colony in Orkney, and thence croſſing Pictland frith, and traverſing Caithneſs, Roſs, Murray, Marr, and Angus, ſettled in Fife and Lothian; thence called by our writters *Pictlandia*. Others think they did not ſettle here till the time of Reuther king of Scotland, when the Picts joining with a party of the Scots, were repulſed, with the loſs of their king Gethus, and many of the Picts and Scottiſh nobility, with great ſlaughter; but the invaſions of the Britons, at the ſame time, conſtrained the Picts to fly to Orkney, where they choſe for king Gothus their deceaſed ſovereign's brother,

* The Romans, never that we know, viſited theſe iſlands again but once, which was probably after Honorius had defeated the Saxons in the ſeas of Orkney.

Orkney.

probability the moſt authentic) account that we have of this early part of the hiſtory of the Orkneys, ſeems to be in Torfæus. See TORFÆUS. His hiſtory muſt, doubtleſs, have been compiled chiefly from tradition, which is far from being the ſureſt mode of information. During the time of Gregory the Great, when by his policy the Picts were driven from other parts of Scotland, they came to the Orcades as an aſylum; but it does not appear, and is far from being probable, that they received a favourable reception, for many of them migrated to Shetland, and from thence to the oppoſite coaſts of Norway. A particular hiſtory of theſe iſlands during thoſe early ages would afford little entertainment, becauſe its authenticity is at leaſt doubtful. Theſe iſlands were at various times haraſſed and plundered by adventurers from Scandinavia; and the Norwegian princes frequently laid the inhabitants under tribute.

We have ſaid that the Chriſtian religion was tranſported to the Orkneys from Norway, and that this happened in the beginning of the 11th century. About which time Sigurdis poſſeſſed the entire dominion of thoſe iſles, and for many years exerciſed all the powers of a monarch in the north. At the ſame time Chriſtianity had dawned on Scandinavia, and had become the eſtabliſhed religion in the ſeat of government in Norway. Its doctrines interwove themſelves with the policy of the nation; its principles, ſo nearly intereſting to human happineſs, made their farther publication an object of much moment to the adventurous princes, and gave a new law to their enterpriſes. While the power of theſe principles was acting with original force upon the minds of the people, and their zeal rendered them ambitious of any exploit, whereby they could diffuſe their influence; Olaus prince of Norway equipped a ſquadron deſtined to carry the knowledge of the goſpel to other ſhores. On this pious adventure he was accompanied not only by numbers of all ranks, whom, as uſual, a love of enterpriſe invited; but by many perſons of diſtinguiſhed knowledge and abilities, men of ſincere piety, who had become particularly well acquainted with the Chriſtian doctrines, and entertained a deep ſenſe of their infinite importance. Theſe entered into the fleet, joyful in the proſpect of ſpreading the truths which they revered through yet unenlightened countries; and the ſquadron ſoon appeared off the Orcades. Olaus got Sigurdis on board of his fleet, with his ſon, and but a few attendants, and, as the heir of Harold, he claimed all the provinces over which Sigurdis reigned; and at the ſame time he ordered him to renounce and abjure the religion of his fathers, and to embrace Chriſtianity. Delay was not permitted; Chriſtianity was forced upon him and his ſubjects; and, on the departure of Olaus, he carried the ſon of Sigurdis as an hoſtage for what he had engaged; which was to give honourable protection to all thoſe holy men who might chooſe to reſide in thoſe parts for the purpoſe of inſtructing the people in the nature of the Chriſtian doctrines; for many of the more intelligent and religious men who had come from Norway with Olaus, remained in the Orcades and in the north of Scotland, to fulfil their pious reſolution of ſpreading the light of the goſpel there. Olaus, with the reſt of his followers, ſailed on another expedition towards the frith of Moray. The death of Kindius his ſon, which happened ſoon after Olaus's return to Norway, releaſed Sigurdis from his engagements with him; and he entered into one with Malcolm II. one of whoſe daughters he had in marriage, and by whom he had a ſon, Torphinus. Torphinus's bravery, magnificence, generoſity, and hoſpitality, endeared him to the inhabitants; and he ruled without controul for many years, till Ronald, a grandſon of Sigurdis, who had lived in Norway, and who was eſteemed the rightful heir of the earldom of Orkney, made a ſucceſsful deſcent upon it. Torphinus wiſhed to give him battle; and in a ſea-fight, with the aſſiſtance of ſome ſhips from Arninus, a man who had filled ſome of the firſt places in Norway, he totally defeated him. By courting the friendſhip of that court, his dominions remained quiet for the greater part of his life; the latter part of which was no leſs eminent for eſtabliſhing ſalutary laws, and encouraging the arts of induſtry, than the former had been diſtinguiſhed for military fame and ſucceſs in the exploits of war. He lived to an advanced age, until after Malcom III. had aſcended the throne of Scotland. Torphinus had built a ſumptuous church in Byrſa, where the firſt biſhops of Orkney reſided. In the decline of life he retired to that iſland, and, finiſhing his days with exemplary piety, was with much ſolemnity interred in the temple which he had raiſed. His country long lamented the loſs of ſo celebrated a ruler, who had eſtabliſhed ſecurity in it, through the influence of his laws, and had taught it to enjoy the arts and bleſſings of peace. He left two ſons, Paul and Erland, who through the whole of their lives amicably ſhared both in the honours and adminiſtration of their father's extenſive domain. During this period, the northern counties are ſaid to have arrived at a very ſuperior degree of cultivation and improvement, which became equally conſpicuous in the richneſs of their lands, and in the mildneſs of their diſpoſitions. Their ſons, however, did not both inherit their father's virtues. Magnus, the ſon of Erland, was pious and

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brother, till they were able to return to Lothian, and drive out the Britons. After this they flouriſhed here, and were governed by kings of their own. There ſtill remains a place called Cunningſga, the dwelling place of the miniſter of Sandwick, whoſe name and form beſpeak it the reſidence of ſome of them. But no traces of their hiſtory remain, except the name of Belus, in ancient characters, on a ſtone in the church of Birſa, where ſtill is to be ſeen one of the principal palaces. This government probably ſubſiſted till the ſubverſion of the Pictiſh kingdom in Scotland, A. D. 839, by Kenneth II. king of Scotland. On the whole, however, the time of the diſcovery and population of the Orkneys is certainly unknown. Probably it was very early; for we are told that they owe their name to the Greeks.

Orcades has memorant dictas à nomine Græco. CLAUDIAN.

Orkney. and peaceable; a great promoter of religion, and anxious in patroniſing the Romiſh miſſionaries, and in protecting the eſtabliſhments of Chriſtianity: but Hacon, the heir of Paul, was vehement, wild, and impatient of reſtraint. He ſaw how Magnus was revered, and envy drove him to revenge; for, by the moſt deliberate and deceitful villany, he got Magnus into his power, and murdered him without mercy. The latter part of his life was ſpent in penance, and in improving his dominions.

Magnus's ſingular piety, and the manner of his unfortunate death, were ſo well repreſented at the court of Rome, that he was canonized. Hacon left two ſons, Paul the Silent, and Harold the Orator. Caithneſs came to Harold, and the Orkneys were governed by Paul.

Ronald, a deſcendant of St Magnus, an elegant and accompliſhed youth, appeared at the court of Norway, and was ſupported in a claim upon the Orkneys, as the heir of the canonized martyr. He ſent meſſengers to Paul, and offered to ſhare the government with him; but this propoſal was refuſed, and the ambaſſadors were treated with great contempt. They, however, found perſons of power diſpoſed to ſecond their maſter's views; who ſoon after their return ſet out, and vowed, if he ſucceeded, to build a magnificent church, and to dedicate it to St Magnus. All ſeemed ſatisfied with the enterpriſe; and, full of hope, the fleet ſet ſail. Paul in the mean time put himſelf in a ſtate of defence. By very artful manœuvres, however, Ronald obtained his purpoſe, and willingly ſhared his ſovereignty with Harold, the legal heir of Paul. They lived amicably together; and on the aſſaſſination of Ronald, which was accompliſhed by a proud chieftain, who thought himſelf inſulted, he was buried with great pomp. Harold now fully poſſeſſed the unrivalled ſovereignty of the north, and lived long to enjoy it. We find that in 1196 he was able to bring 7000 men to the field, and a body of cavalry, againſt the army of William king of Scotland, but was immediately defeated. In the next year, the Caithneſians rebelled again, headed by one Roderic, and Torphinus, ſon to Harold. The king met and defeated them near Inverneſs. Roderick was ſlain; and William ſeizing on Harold in the extremity of Caithneſs, detained him till Torphinus ſurrendered himſelf as an hoſtage; but on ſome new treaſons of the father, the king, according to the barbarity of the times, cauſed the eyes of the unhappy youth to be put out; and had him emaſculated, of which he ſoon periſhed in priſon. Harold died in the 73d year of his age; and with him ended, in its earls, the independent ſovereignty of the north of Scotland. The Norwegians ſeem to have been in poſſeſſion of theſe iſles as late as 1266; for then Magnus IV. king of Norway, being worſted in war with the Scots, yielded them to Alexander III. king of Scotland by treaty, and Haquin king of Norway confirmed the poſſeſſion of them to King Robert Bruce in the year 1312. Laſtly, in 1464, Chriſtian I. king of Norway and Denmark, when he gave his daughter in marriage to James III. king of Scotland, transferred all his right to them to his ſon-in-law and his ſucceſſors; to make which more binding the Pope's confirmation was obtained. We are told by ſome, that Magnus ſold them to Alexander for the ſum of 4000 merks ſterling, and a yearly acknowledgement of 100 merks. Orkney.

They are about 30 in number; but many of them are uninhabited, the greater part being ſmall, and producing only paſturage for cattle. The principal iſlands are denominated by the names of *Mainland*, *South Ronaldſha*, *Swinna*, *Flotta*, *Copinſha*, *Strupenſha*, *Stronſa*, *Sanda*, *&c.* the terminations in *a*, or *ha*, being generally given in the Teutonic to ſuch places as are ſurrounded by water. The currents and tides flowing between the iſlands are extremely rapid and dangerous. Near an iſland called *Swinna* are two great whirlpools, called the *wells of Swinna*, which are counted dangerous by mariners, eſpecially in a calm. When ſailors find themſelves ſucked into the vortex, it is ſaid they throw out a barrel, or ſome bulky ſubſtance, which ſmooths the water till it is ſucked down and thrown up at a conſiderable diſtance, during which time the ſhip paſſes over in ſafety. But when there is a breeze of wind, theſe whirlpools may be croſſed without any danger. The largeſt of theſe iſlands is called *Pomona*, in length 33, and in breadth 9 miles, containing 9 pariſh-churches, and 4 excellent harbours.

The air of theſe iſlands is moiſt, on account of the neighbourhood of the ſea; and froſt and ſnow do not continue long. In ſome places the ſoil is bare and mountainous, and in others ſandy and barren; however, many of the iſlands produce large crops of barley and oats, but no wheat or other grain excepting what is incloſed in gardens. Theſe, when duly cultivated, produce all kinds of kitchen herbs and roots, bringing even fruit-trees to maturity; but out of them, in the open country, there is ſcarce a tree or ſhrub to be ſeen, except juniper, wild myrtle, heath, and the cyur-hodon: yet this deficiency cannot be imputed to the poverty of the ſoil, or the nature of the climate: for the trunks of large oaks are frequently dug up in the marſhes. This is likewiſe the caſe in the moſt barren parts of the Highlands of Scotland, where not a ſhrub is to be ſeen above the ſurface of the earth: nay, the inhabitants frequently find, deep in the earth, the roots of large trees, evidently exhibiting marks of the axe by which they were felled; ſo that theſe northern parts muſt have undergone ſome ſtrange revolutions. The Orkneys produce great variety of herbs and berries, graſs and corn, which laſt is exported as far as Edinburgh. In ſome of the iſlands, the natives have diſcovered mines of tin, lead, and ſilver, though none of them are wrought to any advantage; in others, we find abundance of marl, gray and red ſlate, quarries of freeſtone, and even of marble and alabaſter. When the wind rages to any violence, the ſea throws in plenty of timber, torn from other countries; and, not unfrequently, the people find large pieces of ambergreaſe. The freſh water in theſe iſlands is very pure and limpid; and, though there are no large rivers in the Orkneys, the ground is well watered with lakes and pleaſant rivulets, that not only ſerve to turn their mills, but alſo abound with trout of the moſt delicate flavour.

Beſides the abundance of little horſes, black cattle, ſheep, ſwine, and rabbits, the inhabitants of the Orkneys rear all ſorts of domeſtic animals and tame poultry. Their heaths and commons yield plenty of red deer,

Orkney. deer, and all ſorts of game; partridges, growſe, heath-cocks, plover, duck, teal, and widgeon: the ſea-coaſts teem with ſeals and otters; and are viſited by whales, cod, ling, tuſk, herrings, and all manner of fiſh: on the ſhore they find ſpermaceti, os ſepiæ, and a great variety of ſhells and corallines, with a multitude of oyſters, remarkably large muſcles, crabs, and cockles. The rocks are covered with ſea-fowl, wild geeſe, ſolan geeſe, barnacles, eagles, hawks, and kites. With reſpect to the barnacles, or, as the natives call them, the *cleck geeſe*, they are ſaid to be found in ſhells ſticking by the bills to trees, in ſeveral iſlands. Martin affirms he has ſeen them in this ſituation, but could not perceive them alive; and indeed the whole account of their generation and production, exhibited by the northern naturaliſt, is abſurd and unphiloſophical. The Orkney eagles are ſo ſtrong, that according to the reports of the country, they have been known to carry away young children in their talons. Certain it is, they make ſuch havock among the lambs, that he who kills an eagle is entitled by law to a hen from every houſe in the pariſh where it was killed. The king's falconer viſits theſe iſlands every year, in order to fetch away the young hawks and falcons from their neſts among the precipices: he enjoys a yearly ſalary of 20l. and may claim a hen or a dog from every houſe in the country, except thoſe that are expreſsly exempted from this impoſition.

The gentry of the Orkneys are civilized, polite, and hoſpitable; and live like thoſe of Scotland, from whom they are chiefly deſcended. They live comfortably, are remarkably courteous to ſtrangers, and drink a great quantity of wine, with which their cellars are generally well ſtored. Indeed the inhabitants of the Orkneys may be now juſtly deemed a Scotch colony. They ſpeak the language, profeſs the religion, follow the faſhions, and are ſubject to the laws, of that people. They are frugal, ſagacious, circumſpect, religious, and hoſpitable. Their mariners are remarkably bold, active, dexterous, and hardy. Many ſurpriſing inſtances of longevity occur here, as well as in Shetland, of perſons living to the age of 140. The Orkney women are generally handſome, and well ſhaped, and bring forth children at a very advanced age. In the Orkneys, ſome particular lands are held by a tenure called *Udal Right*, from Ulcius, or Olaus, king of Norway, who farmed the lands, on condition of receiving one-third of the produce; and this right devolved in ſucceſſion, without any charter granted by the ſovereign. The inhabitants of Orkney, inſtead of meaſuring their corn, weigh it in piſmores or pundlers. Their leaſt denomination is a mark, conſiſting of 18 ounces, and 24 marks make a liſpound, which is a Daniſh quantity. The poorer ſort of people in the Orkneys appear very meanly habited, with a piece of ſeal-ſkin, inſtead of ſhoes; and living chiefly on ſalt fiſh, are ſubject to the ſcurvy. They are much addicted to ſuperſtitious rites; in particular, interpreting dreams and omens, and believing in the force of idle charms. The iſlands of Orkney, we have already obſerved, produce very bold, able, and hardy mariners. The common people, in general, are inured to fatigue, and remarkably adventurous, both in fiſhing during rough weather, and in climbing the rocks for the fleſh, eggs, and down of ſea-fowl. Formerly, while they were expoſed to the invaſions of the Norwegians, or weſtern iſlanders, every village was obliged Orkney. to equip a large boat well manned; and all the fencible men appeared in arms, when the alarm was given by the beacons lighted on the tops of the rocks and higheſt mountains. Theſe beacons, known by the name of *ward-hills*, are ſtill to be ſeen in every iſland. Their corn land they incloſe with mud or ſtone walls, to preſerve it from the ravages of their ſheep, ſwine, and cattle, which wander about at random, without being attended by herdſmen: their ordinary manure, eſpecially near the ſea-coaſt, is ſea-weed, which they carefully gather and divide into equal portions. Their ſheep are marked on the ears and noſe; but ſo wild, that when they have occaſion to ſhear them in the month of May, they are obliged to hunt every individual, with dogs trained for that purpoſe. Their manner of catching ſea-fowl is curious and particular. Under the rock where theſe fowls build they row their boat, provided with a large net, to the upper corners of which are faſtened two ropes, lowered down from the top of the mountain by men placed in that ſtation. Theſe hoiſting up the net, until it be ſpread oppoſite to the cliffs in which the fowls are ſitting, the boatmen below make a noiſe with a rattle, by which the fowls being frightened, fly forwards into the boſom of the net, in which they are immediately encloſed and lowered down into the boat; others practiſe the method uſed in Iceland and Norway, and are lowered down by a ſingle rope from the ſummit of the mountain; this is the conſtant way of robbing the hawk's neſt. See *Bird-Catching*. In theſe iſlands ſome ſtrange effects are produced by thunder and lightning. In the year 1680, the lightning entered a cow-houſe, in which 12 cows ſtood in a row, and killed every ſecond beaſt as ſhe ſtood, and left the reſt untouched. The diſtempers that prevail moſtly in the Orkneys are agues, conſumptions, ſcurvy, and itch. The agues, which abound in the ſpring, the natives cure with a diet drink of bitters and antiſcorbutics infuſed in ale: for phthiſical complaints they uſe the plant arby, and the caryophyllus marinus boiled with ſweet milk.

The iſles of Orkney and Shetland compoſe one ſtewartry, and ſend one member to the imperial parliament. The right of ſuperiority to the Orkneys was diſmembered from the crown by the union parliament, and granted for a certain yearly conſideration to the earl of Morton, by Queen Anne, who appointed him hereditary ſteward and juſticiary. This nobleman poſſeſſes the power of creating certain judges, called *bailiffs*. There is one of theſe eſtabliſhed in every iſland and pariſh, with power to ſuperintend the manners of the inhabitants, to hold courts, and determine civil cauſes, according to the laws of Scotland, to the value of ten pounds Scots money, amounting to 16s. 8d.: but all conteſts of higher import are referred to the deciſion of the ſteward or his deputy, who reſides at Kirkwall, which is the ſeat of juſtice. Subſervient to the bailiffs are ſix or ſeven of the moſt reputable and intelligent inhabitants, who overſee the conduct of their fellows, acting as conſtables, and make report of all enormities to the bailiff; who cauſes the delinquent to be apprehended and puniſhed, if the crime be within the extent of his judicial power; otherwiſe he tranſmits him to Kirkwall, where he is tried by the ſteward. The Proteſtant

Orkney. teſtant religion prevails in the iſles of Orkney, according to the rites and diſcipline of the kirk; theſe, and the iſles of Shetland, conſtituting one preſbytery, which aſſembles at Kirkwall. The country is divided into 18 pariſhes, containing 31 churches, and above 100 chapels.

The trade of the Orkneys is not very conſiderable, though it might be extended to great advantage. They ſupply with freſh proviſions, for ready money, the ſhips and veſſels that touch upon the coaſt in the courſe of northern voyages, or in their paſſage from the Eaſt Indies, when they go north about Ireland and Scotland, in time of war, to avoid the privateers of the enemy. They are alſo viſited by thoſe engaged in the herring-fiſhery, though there is not ſuch a reſort on this account to theſe iſlands as to the iſles of Shetland. Nevertheleſs a good number of boats from the weſtern parts of Scotland, as well as from Londonderry, Belfaſt, and other parts of Ireland, fiſh for herring as far north as the Leuze, and ſupply the Orkneys with tobacco, wine, brandy, and other ſpirituous liquors, cloths, and divers manufactures. Theſe they exchange for fiſh, and oil extracted from porpoiſes, ſeals, and other ſea-animals. The people of Orkney export annually great numbers of black cattle, ſwine, and ſheep; together with large quantities of corn, butter, tallow, ſalt, and ſtuffs made in the country, over and above the ſkins of ſeals, otters, lambs, and rabbits, down, feathers, writing-quills, hams, and wool; yet all theſe articles would, in point of profit, fall infinitely ſhort of their herring-fiſhery, were it proſecuted with induſtry, economy, and vigour.

The moſt valuable of their manufactures is kelp, and indeed the ſtaple commodity was firſt introduced in 1722, by a Mr James Fea, of Whitehall, in Stronſay, ſince which period it has been gradually on the increaſe. From 1763 to 1778, there were manufactured, on an average, 1800 tons annually at four guineas per ton; from 1778, to 1792, the annual average produce was 3000 at 6l. per ton; from 1792 to 1794, above 4000 tons. Thus, from 1722 to 1794, a period of 72 years, the produce of the kelp was 291,976l. ſterling, or more than the value of all the Orkney iſlands, even at the rate of 36 years purchaſe; the annual rent, excluſive of the kelp and fiſheries, not exceeding 8000l. ſterling.

As there are no merchants in the Orkneys at preſent who export fiſh on their own account, what herrings are taken they ſell to the Dutch or Scotch dealers in and about Inverneſs. They generally fiſh for herring on the weſt ſide of the Orkneys; and are therefore more remote from markets than thoſe who are employed in the ſame manner on the coaſt of Shetland. In the Orkney iſlands they ſee to read at midnight in June and July; and during four of the ſummer months they have frequent communications, both for buſineſs and curioſity, with each other, and with the continent: the reſt of the year, however, they are almoſt inacceſſible, through fogs, darkneſs, and ſtorms. It is a certain fact, that a Scotch fiſherman was impriſoned in May for publiſhing the account of the prince and princeſs of Orange being raiſed to the throne of England the preceding November; and he would probably have been hanged, had not the news been confirmed by the arrival of a ſhip.

We may reckon among the curioſities of the Orkneys, the *Phaſeoli*, commonly known by the name of *Molucca beans*, and ſometimes they are called *Orkney beans*. They are a ſort of fruit found on the ſhore of the Orkney iſlands, being thrown on them by ſtorms of weſterly wind. They are of ſeveral diſtinct ſpecies, and are none of them the produce of thoſe iſlands, nor of any places thereabout, but are probably of American origin, many of them being plainly natives of Jamaica, and other iſlands of the Indies. Orkney.

They are found principally on thoſe coaſts which are moſt expoſed to the waves of the great ocean, and are on theſe ſo plentiful, that they might be gathered in large quantities, if of any value; but the only uſe they are put to is the making of ſnuff-boxes out of them. Sir Robert Sibbald, and Mr Wallace, in their accounts of Scotland, have both named them *Molucca* BEANS. Many ſtrange fiſhes and curious ſhells are alſo frequently caſt up by the ocean; of theſe laſt a vaſt variety are preſerved for adorning the cabinets of modern naturaliſts. Sometimes exotic fowls are driven upon the Orkneys by tempeſtuous weather: fiſh, as large as whitings, have been thrown aſhore to a conſiderable diſtance within the land. At Cantick-head, in the iſland Waes, and ſome other places, huge ſtones are often heaved up by the violence of the ſea and wind, and caſt over high rocks upon the land. A ſingle Laplandar has been ſeen more than once upon this coaſt, in his ſlender canoe, covered with ſkins, being driven hither by adverſe winds and ſtorms. The Orkneys are not altogether deſtitute of ancient monuments and curioſities of art. In Hoy we find an entire ſtone, 36 feet long, 18 in breadth, and 9 in thickneſs, lying between two hills, and known by the name of *dwarfie ſtone*. It is hollowed within by the tools of a maſon, the marks of which are ſtill apparent. The entrance is a ſquare hole about two feet high, with a ſtone, by way of door, ſtanding before it. Within we find a bed with a pillow cut out of the ſtone; at the other end is a couch of the ſame kind; and in the middle a hearth, above which there is a hole or vent for the exit of the ſmoke. This curioſity is found in the midſt of a deſolate heath, and is ſuppoſed to have been the reſidence of a hermit: in the very neighbourhood of this ſtone there is a very high and ſteep mountain, called the *ward-hill of Hoy*, near the ſummit of which, in the months of May, June, and July, ſomething at noon-day is ſeen to ſhine and ſparkle with remarkable luſtre, ſuppoſed by the common people to be an inchanted carbuncle; many perſons have clambered up the hill in queſt of it, but found nothing. Perhaps this ſplendour is produced by the reflection of the ſun on a ſmall ſtream of water ſliding over the face of a ſmooth rock. At Stennis, in Mainland, there is a cauſeway of ſtones over a loch or lake, at the ſouth end of which we obſerve a circle of ſtones riſing about 20 feet above ground, each being ſix feet in breadth, and from one or two feet in thickneſs: between this circle and the cauſeway two ſtones of the ſame dimenſions ſtand by themſelves, and one of them is perforated in the middle. At the diſtance of half a mile from the other end of the cauſeway appears a larger circle of the ſame kind of ſtones, the diameter of which may amount to 110 paces; ſome of theſe ſtones are fallen; and to the eaſt and weſt of the larger circle are two artificial green mounts. Both rounds are ſurrounded with a ditch; and one cannot view them without admiration, conſidering

Orkney. considering the art that muſt have been uſed to bring ſuch unwieldy maſſes together in this order. They were probably temples and places of ſacrifice uſed in times of pagan ſuperſtition; and ſeem to bear a great affinity with the celebrated monument called *Stonehenge*, on Saliſbury Plain in England. In one of the mounts, at the north end of the cauſeway, the natives found nine *fibulæ*, or claſps of ſilver, formed into a circle, and reſembling a horſe ſhoe. In many different places of the Orkneys we find rude obeliſks or ſingle ſtones of a great height, ſet up either as memorials of battles, treaties, or the deceaſe of remarkable perſonages. In Rouſay, between two high mountains, there is a place which the natives diſtinguiſh by the appellation of the *camp of Jupiter Fring:* but the meaning of this name, handed down by tradition, is not known. At the weſt end of the Mainland, near Skeal, we find a ſurpriſing cauſeway, above a quarter of a mile in length, on the ſummit of high hills, compoſed of reddiſh ſtones of different magnitudes impreſſed with various figures both on the upper and under ſurface. Some gentlemen in the neighbourhood have carried off the moſt beautiful of theſe ſtones, to be ſet in their chimneys by way of ornament, like the painted tiles of Holland. This country produces many ſepulchres of different nations. In the plains or links of Skeal, the ſand being blown away from the ſurface of the ground, ſeveral ſquare catacombs appear built of ſtones well cemented together, containing ſome parcels of black earth, and each ſecured by a large ſtone at the mouth. Sepulchres of the ſame kind are found at Rouſum in Stronſa; which is likewiſe remarkable for a different kind of monument, conſiſting of one entire ſtone cylinder hollowed, with a bottom like that of a barrel, and a round ſtone to fill up the entrance; above, the ſtone was ſharpened into an edge; within were found ſome burned bones and red clay; and over it was placed a large flat ſtone for the preſervation of the whole. Theſe, in all probability, were Roman catacombs. In Weſtra divers Daniſh graves have been diſcovered: in one of theſe appeared the ſkeleton of a man, with a ſword on one ſide and a Daniſh axe on the other. Some have been found buried with dogs, combs, knives, and other utenſils. In many places of the country we find round hillocks or barrows, here known by the name of *brogh*, ſignifying, in the Teutonic language, burying place, ſuppoſed to have been the cemeteries of the ancient Saxons. In different parts of theſe iſlands we ſee the remains of great buildings, believed to have been fortreſſes erected by the Danes or Norwegians when they poſſeſſed the country. One of theſe in the iſle of Wyre, called the *caſtle of Coppi-row*, ſignifying a town of ſecurity, is ſurrounded by a foſſe, and the firſt floor ſtill remains above ground, a perfect ſquare of ſtone wall, very thick, ſtrongly built, and cemented with lime, the area within not exceeding ten feet in length. Of this Coppi-row the common people relate many idle fables. In the chapel of Clet, in the iſle of Sanda, there is a grave 19 feet long, in which was found part of a man's back bone, larger than that of a horſe. Human bones, of nearly the ſame ſize, have been dug up in Weſtra; and indeed this country is remarkable for producing men of a gigantic ſtature. Within the ancient fabric of Lady Kirk in South Ranalſhaw, there is a ſtone four feet long and two feet broad, on which the prints of two feet are engraven, ſuppoſed to be the place where, in times of popery, penitents ſtood to do public penance. The cathedral of Kirkwall, the capital of the Orkneys, is a fine Gothic building, dedicated to St Magnus, but now converted into a pariſh church. Its roof is ſupported by 14 pillars on each ſide; and its ſteeple, in which is a good ring of bells, by four large pillars. The three gates of the church are chequered with red and white poliſhed ſtones, emboſſed and elegantly flowered. Orkney.

Campbell, in his Political Survey, ſuggeſts two improvements in the Orkneys: 1. The erecting an univerſity; of which he recapitulates the probable advantages ariſing from their centrical ſituation: And, 2. Allowing the Eaſt India Company to erect a ſpacious magazine in one of theſe iſlands; where alſo a collector, and a ſufficient number of king's officers, ſhould reſide, to receive the duties of ſuch Eaſt India commodities as might be taken off by Britiſh ſubjects. Theſe he propoſes for the Orkneys in particular, and in addition to improvements propoſed for the whole iſlands in general.

The following table exhibits a view of the population of the pariſhes of Orkney and Shetland, at two periods.

	Pariſhes.	Population in 1755.	Population in 1790—1798.
	ORKNEY.		
1	Croſs, Burneſs, &c.	1250	1389
	Dearneſs and St Andrew's	1650	1335
	Evie and Rendall	1798	1564
	Firth and Stenneſs	1108	1186
5	Harray and Birſay	2200	2013
	Holm	1185	702
	Hoy and Græmſay	520	410
	Kirkwall	1089	2550
	Ladykirk	750	803
10	Orphir	855	826
	Rouſay and Egliſhay	978	1072
	Shapinſhay	642	730
	South Ronaldſhay, &c.	1996	1954
	Stromneſs and Sandwick	2677	3912
15	Stronſay and Eday	1493	887
	Walls and Flota	1000	991
	Weſtray and Papa Weſtray	1290	1629
	Total, Orkney,	23,381	23,053
	SHETLAND.		
	Breſſay and Burray	1098	1225
	Delting	1221	1504
20	Dunroſſneſs	2295	3327
	Fitlar and North Yell	1098	1346
	Lerwick	1193	1259
	Neſting	1169	1535
	Northmaving	1009	1786
25	Sandſting	911	1285
	South and Mid Yell	986	1422
	Tingwall	1412	1786
	Unſt	1368	1988
29	Walls and Sandneſs	1450	1723
	Total, Shetland,	15,210	20,186
	Orkney,	23,381	23,053
	Total,	38,591	43,239
			37,591
		Increaſe,	4648

Orle || Orleans.

But in 1801, according to the returns made to Parliament, the population of Orkney was 24,445, and that of Shetland was 22,379. For a fuller account of Orkney, ſee Barry's Hiſtory of the Orkney Iſlands, 4to. 1805.

ORLE, ORLET, or *Orlo*, in *Architecture*, a fillet under the ovolo, or quarter round of a capital. When it is at the top or bottom of a ſhaft, it is called *cincture*. Palladio uſes the word orlo for the plenith of the baſis of the columns.

ORLE, in *Heraldry*. See HERALDRY.

ORLEANOIS, a province of France, now forming the department of Loiret, and including the ſeveral diſtricts of Orleanois-Proper, Beauce-Proper or Chartrain, Dunois, Vendomois, Blaiſois, the greateſt part of Gatinois, and Perche-Gouet. The principal rivers of it are the Loire, the Loiret, the Cher, the Laconie, the Aigle, the Hyere, the Yonne, and the Eyre. There are alſo ſome remarkable canals, particularly thoſe of Briare and Orleans. The river Loire, and the canals drawn from thence, greatly facilitate and promote the inland trade of the kingdom, and particularly of this department.

Orleanois, in Latin *Aurelianenſis Ager*, is bounded on the ſouth by Sologne, on the north by Upper-Beauce, on the eaſt by Gatinois, and on the weſt by Dunois and Vendemois. The Loire divides it into Upper and Lower; the former lying to the north, and the latter to the ſouth of that river. It yields plenty of grain, wine, wood, and fruit, and abounds in cattle, game, and fiſh.

ORLEANS, the capital of the government of Orleanois, now the department of Loiret. It was anciently called *Genabum*, or *Cenabum*; and afterwards denominated *Aurelia*, *Aureliæ*, and *Aurelianum*, by the emperor Aurelian, who conſiderably enlarged it. In Julius Cæſar's time it was the capital of the Carnutes. It ſtands about 20 leagues ſouth of Paris, on the northern bank of the Loire; acroſs which Mr Wraxall ſays there is an elegant bridge of nine arches, the entrance by which is exceedingly noble and ſtriking, the ſtreet which leads from it being compoſed of moſt elegant modern buildings. In general, however, excepting this ſtreet, it is very meanly built; the ſtreets are narrow, and the inhabitants in general poor. It is ſurrounded with walls, and fortified with 40 towers. The ſtreets almoſt all terminate at the quay for the convenience of trade. It is a place of conſiderable magnitude; and before the revolution had ſeveral inferior courts of juſtice, and an univerſity of no great repute. It was alſo a biſhop's ſee; and the cathedral is a moſt ſuperb Gothic ſtructure, and had the fineſt ſteeple in France till it was damaged in the time of the civil wars. There were 22 pariſhes in it, and a great number of churches, ſome of which were collegiate, and religious houſes. There is alſo a public walk, planted with ſeveral rows of trees; and there uſed to be ſome ſugar bakers; a manufacture of ſtockings and ſheep ſkins; a ſeminary in which divinity was taught; a great trade in brandy, wine, ſpices, and ſeveral manufactures, which, with many other commodities, uſed to be conveyed to Paris by means of the Loire, and the canal which takes its name from the city. The canal begins about two miles above the city; is near 18 leagues in length; and terminates on the Loing, which falls into the Seine.

The environs of Orleans, more eſpecially in the province of Sologne, to the ſouth of the Loire, are very agreeable. It is in general a level country, covered with corn and vines. To the north of the city is a foreſt, the largeſt in the whole kingdom. Before the revolution it belonged to the Duke of Orleans: to whom the timber felled in it, one year with another, brought about 100,000 livres. Ever ſince the year 1344 this city has been a dukedom and peerage, and uſually an appendage of ſome prince of the blood. The late duke, who took the name of *Egalité*, and who was afterwards guillotined, ſeems to have been one of the moſt deteſtable monſters which ever diſgraced humanity. Louis XIV. gave the dukedom to his own brother Philip, who began and finiſhed the canal; which, by the duties paid by veſſels going up and down, brought in, one year with another, 150,000 livres. The biſhop was ſuffragan to the archbiſhop of Paris, and had a revenue of 24,000 livres, out of which his tax to Rome was 2000 florins. A new biſhop, it is ſaid, on the firſt day of his entering, had the privilege of releaſing all the priſoners in it, except thoſe committed for treaſon. In the ſtreet leading from the bridge ſtands the celebrated monument where Charles VII. and Joan of Arc the Maid of Orleans, are repreſented on their knees before the body of our Saviour, who lies extended on the lap of the Virgin. It was erected by order of that monarch in 1458, to perpetuate his victories over the Engliſh, and their expulſion from his dominions. All the figures are in iron. The king appears bareheaded, and by him lies his helmet ſurmounted with a crown. Oppoſite to him is the Maid herſelf, in the ſame attitude of grateful devotion to Heaven. It is a moſt precious and invaluable hiſtorical monument.

Orleans.

"In the Hotel de Ville (ſays Wraxall) is a portrait of the ſame immortal woman, which I ſtudied long and attentively. Though it was not done till 1581, which was near 130 years after her deceaſe, it is yet the oldeſt and beſt picture of her now exiſting. The painter ſeems undoubtedly to have drawn a flattering reſemblance of her, and to have given his heroine imaginary charms. Her face, though long, is of exceeding beauty, heightened by an expreſſion of intelligence and grandeur rarely united. Her hair falls looſely down her back, and ſhe wears on her head a ſort of bonnet enriched with pearls, and ſhaded with white plumes, tied under her chin with a ſtring. About her neck is a little collar, and lower down, upon her boſom, a necklace compoſed of ſmall links. Her dreſs, which is that of a woman, I find it difficult exactly to deſcribe. It fits cloſe to the body, and is cut or ſlaſhed at the arms and elbows. Round her waiſt is an embroidered girdle, and in her right hand ſhe holds the ſword with which ſhe expelled the enemies of her ſovereign and her country. I am not ſurpriſed at the animated and enthuſiaſtic attachment which the French ſtill cheriſh for her memory. The critical and deſperate emergency in which ſhe appeared; her ſex, youth, and even the obſcurity of her birth; the unparalleled ſucceſs which crowned her enterpriſe; the cruel and deteſtable ſentence by which ſhe was put to death; the air of the marvellous ſpread over the whole narration, increaſed and ſtrengthened by that veneration which time affixes to every great event—all theſe united cauſes conſpired

Orleans || Ormſkirk.

to place her above mortality. Rome and Athens would undoubtedly have ranked her among their tutelary deities, and have erected temples to her honour; nor can I help being amazed, that amidſt the almoſt infinite number of modern ſaints who croud and diſgrace their churches, no altar has yet been dedicated to the Maid of Orleans." See FRANCE, N° 101.

The bridge was new built in the 18th century, and opened in 1760; and the French eſteem it the fineſt in the world. E. Long. 1. 59. N. Lat. 47. 54.

ORLEANS, *Peter Joſeph*, a French Jeſuit, and author of *Hiſtoire des Revolutions d'Angleterre*, was born at Bourges in 1641. He taught belles lettres for ſome time in his ſociety, but afterwards devoted himſelf to the writing of hiſtory. This purſuit he continued till his death, which happened in 1698. He wrote alſo a hiſtory of the Revolutions of Spain; A Hiſtory of Two conquering Tartars, Chunchi and Camhi; The Life of Father Coton, &c. His Hiſtory of the Revolutions in England, under the family of the Stuarts, from the year 1603 to 1690, was tranſlated into Engliſh, and publiſhed at London, 1711, in one vol. 8vo: to which is prefixed an Introduction, by Laurence Echard, M. A. who ſays, that "the great varieties and wonderful changes in theſe reigns are here judiciouſly compriſed in a moderate volume with no leſs perſpicuity than ſtrictneſs; and with a beautiful mixture of ſhort characters, nice reflections, and noble ſentences, which render the whole agreeable and inſtructive. But while the reader is entertained with ſo much ſkill and fineneſs, we ought to caution him with relation to the education and religion of the author; for though he has great marks of a generous candour, and a laudable deference to all ſuperiors; yet he is to be conſidered, in all places, as one in favour with the French king, and not only a true papiſt, but a complete Jeſuit."

ORLOPE, in the ſea language, the uppermoſt ſpace or deck in a great ſhip, reaching from the main to the mizen maſt. In three-deck ſhips, the ſecond and loweſt decks are ſometimes called *orlopes*.

ORMOND, the northern diviſion of the county of Tipperary, in the province of Munſter in Ireland. For a long time it gave the title of *earl*, and afterwards of *marquis* and *duke*, to the noble family of Butler, deſcended from a ſiſter of Thomas à Becket archbiſhop of Canterbury; till, at the acceſſion of George I. the laſt duke was attainted of high treaſon, and died abroad. In that part of the country the family had great prerogatives and privileges granted by Edward III.

ORMSIDE, a ſmall town of England, near Appleby, in Weſtmoreland. A great number of veſſels of braſs, ſome of which ſeemed to have been gilt, were diſcovered near the manor-houſe, by the water waſhing away the ſoil.

ORMSKIRK, in Lancaſhire, in England, is a handſome town, with a good inland trade. By the late inland navigation, it has communication with the rivers Merſey, Dee, Ribble, Ouſe, Trent, Darwent, Severn, Humber, Thames, Avon, &c. which navigation, including its windings, extends above 500 miles, in the counties of Lincoln, Nottingham, York, Lancaſter, Weſtmoreland, Stafford, Warwick, Leiceſter, Oxford, Worceſter, &c. There is a bituminous earth about this place, from which oil of amber is extracted, that preſerves raw fleſh, and ſerves the poor people inſtead of candles.

Ormſkirk || Ornithogallum.

There is nothing remarkable at Ormſkirk, but the monuments of ſome of the ancient family of the Stanleys before they were ennobled. Not far from it is Latham Houſe, to which belongs a large eſtate, and a fine park. It is remarkable only becauſe it was gallantly defended in the civil wars by Lady Charlotte counteſs of Derby, who held it to the laſt extremity againſt the parliament forces, who could never oblige her to capitulate. She held out glorioufly till ſhe was relieved by Prince Rupert. It was, however, ruined in a ſecond ſiege; and ſold by the family to Sir Thomas Bootle, who built a very magnificent houſe upon it.

ORMUS, a ſmall iſland of Aſia, at the bottom of the gulf of the ſame name, at the entrance of the gulf of Perſia. It is about two leagues from the main land, and about ſix leagues in circuit. They catch excellent oyſters about the iſland; and it yields plenty of fine white ſalt; alſo a kind of ſhining black ſand, which is uſed for duſting writings, and is tranſported in conſiderable quantity to Europe. There is neither ſweet water nor graſs upon it, the ſoil being of a ſalt ſulphureous nature. It was taken by the Portugueſe in 1507, who fortified it; and it was afterwards frequented by a vaſt number of merchants, who were extremely rich. In 1622 the Perſians, by the aſſiſtance of the Engliſh, conquered this place, and demoliſhed the houſes, which were 4000 in number, containing 40,000 inhabitants. Some time after, the Perſians rebuilt the fort, and placed a garriſon in it; but they could never bring it to be a place of trade as before: however, it is the key of the Perſian gulf, as well on account of the importance of the place, as the commodiouſneſs of the harbour. It is now almoſt deſerted, for it produces nothing but ſalt, which ſometimes is two inches deep upon the ſurface of the earth. E. Long. 56. 25. N. Lat. 27. 20.

ORNITHIÆ, a name given by the ancients to certain winds, which uſually blew in the ſpring, at the time when the birds of paſſage came over to them. Pliny ſays, that theſe winds blew from the weſt, and that by ſome the Eteſian winds were called by this name. Others ſuppoſe that they blew from the north, or north-weſt.

ORNITHOGALLUM, STAR OF BETHLEHEM; a genus of plants belonging to the hexandria claſs; and in the natural method ranking under the 10th order, *Coronariæ*. See BOTANY *Index*.

ORNITHOLOGY.

INTRODUCTION.

1 Definition. THE term *Ornithology* is derived from the Greek ορνις, a bird, and λογος, *diſcourſe*, and denotes that part of Zoology which treats of birds.

Birds are two-footed animals, covered with feathers, and furniſhed with wings. Like quadrupeds and the cetaceous tribe, they have warm blood, a heart with two ventricles and two auricles, and lungs for the purpoſe of reſpiration; but they are diſtinguiſhed from both by their feet, feathers, wings, and horny bill, as well as by the circumſtance of their females being oviparous.

2 Ornithological writers. The elegant and beautiful colouring of many of the feathered race, the graceful eaſe of their flight, their various muſic, their tender ſolicitude for their offspring, their engaging inſtincts, their ſuſceptibility of domeſtication, and their ſubſervience to the ſuſtenance of man, have, in all ages, contributed to intereſt the latter in the ſtudy of their hiſtory.

3 Ariſtotle and Pliny. Of the naturaliſts, however, whoſe writings have deſcended to us from antiquity, Ariſtotle and Pliny are the only two who appear to have entered into any details on a ſubject ſo inviting and important. Though the former compoſed no particular treatiſe on birds, he brings them under review in different parts of his Hiſtory of Animals. In the third chapter of the eighth book, for example, he enumerates the different ſorts of nouriſhment adapted to different ſpecies, and their various modes of feeding. The ninth book contains his very imperfect nomenclature, his remarks on the diverſified modes of nidification, and ſome valuable obſervations on the family of eagles. His notion of the organization and habitudes of birds are interſperſed in the body of the work, and introduced in the way of comparative reference to the ſtructure and manners of other animals. Pliny's enumeration of the feathered ſpecies, is extended over moſt part of his tenth book, but is deſtitute of preciſe deſcription, and encumbered with abſurdity and fable.

Of the numerous ornithologiſts of more modern date, ſome have chiefly directed their labours to method and claſſification, others have been more ſolicitous to deſcribe and delineate; ſome have treated of the whole claſs, others of particular portions of it; while, laſtly, ſome have been contented to define and deſcribe, and others have illuſtrated and enhanced their text by more or leſs accurate deſigns from living or prepared ſpecimens. This combination of the pen and the pencil, which has ſo eminently contributed, in our day, to the acquiſition and diffuſion of knowledge, ſeems to have been unknown to the ancients.

Although the unavoidable limitation of our plan precludes a minute and critical report of the works to which we have juſt alluded, we ſhall briefly advert to a few of the moſt conſpicuous. Among the firſt who excited, on the continent, a taſte for the ſtudy of ornithology, and for a methodical diſtribution of that portion of ſcience, we may mention Belon. Aware that nature is moſt ſucceſsfully contemplated in her own works, he travelled from the laudable deſire of collecting information, and communicated to the world the reſults of his enquiries. His Hiſtory of Birds, a thin folio volume, divided into ſeven books, or parts, and illuſtrated by wooden cuts, was publiſhed at Paris, in 1555. His principle of claſſification being chiefly founded on the circumſtances of habitation and food, and only occaſionally on external forms and characters, is obviouſly very defective; his deſcriptions, though tolerably accurate, are, for the moſt part too conciſe; and many of his plates are very inadequate repreſentations of their originals. It muſt, at the ſame time, be allowed, that he frequently ſuggeſts judicious views of his ſubject; that he notes with ingenuity, the points of reſemblance between the human ſkeleton and that of birds; that he has penned ſeveral paſſages which may ſtill be peruſed with intereſt and inſtruction; that the *naïveté* of his manner is always pleaſing, and that when we reflect on the period in which he flouriſhed, he is entitled to no ordinary praiſe. 4 Belon.

The celebrated Conrad Geſner, phyſician and profeſſor at Zurich, and contemporary with Belon, has devoted the third volume of his Hiſtory of Animals to the department of ornithology. It is an erudite, but ponderous tome, exhibiting alphabetical tables of the names of birds, in Hebrew, Chaldee, Arabic, Greek, Latin, and moſt of the ſpoken languages of Europe. His deſcriptions are compiled abridgements; but his references, at the cloſe of each article, are very numerous; for if any author of his acquaintance happen to mention a bird, his name and the paſſage are duly commemorated. Geſner's arrangement differs in no reſpect from that of any common dictionary; and few of his engravings are executed with correctneſs. The curious reader will probably be gratified with the peruſal of his account of the art of rearing birds for falconry, the diſeaſes to which they are liable, and the remedies which the learned doctor preſcribes. 5 Geſner.

The ſame topics are diſcuſſed by Aldrovandus, a phyſician of Bologna, who availing himſelf of the writings of the two preceding naturaliſts, added to their indigeſted ſtores, and compiled three folios, divided into 20 books, and illuſtrated by wooden plates. His catalogue, however, ſcarcely compriſes any birds but ſuch as are natives of Europe, and by no means all even of theſe. He too implicitly adopts the vague diſtinctions of Belon; and on various occaſions, not only copies Ariſtotle with ſervility, but overlays his borrowed materials with a maſs of dark commentary. The motley complexion of the whole production, in fact, betrays the deſire of accumulation rather than the exerciſe of taſte and judgement. 6 Aldrovandus.

Johnſton, who publiſhed in 1657 a folio volume of 160 pages, did little elſe than greatly condenſe the heavy compilements of Geſner and Aldrovandus. He divides the whole claſs into land and water birds, and deduces his ſubordinate diviſions from the nature of their 7 Johnſton.

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aliments. His descriptions are generally correct, but scanty; and even his figures, though traced with more character than those of his predecessors, bespeak a parsimony of engraving.

8 Willoughby.

The next writer of eminence in this department, who merits particular quotation, is Francis Willoughby, Esq. an English gentleman, who laid the foundation of a more accurate arrangement. His work, which appeared in 1676, was revised and edited by his friend the celebrated Ray. It is divided into three books, of which the first is allotted to general views of the subject, and an explanation of the author's method. The first chapter treats of the form and external structure of birds, the second of their organization and internal structure. The sixth includes 24 queries, the answers to which, if founded on fact, would greatly contribute to the advancement of ornithology. Mr Willoughby formally recognizes the grand division of *terrestrial* and *aquatic*, comprising under the former those which live at a distance from water, and under the second, those which live on the margin or surface of that element. He then institutes his leading distinctions from the form of the bill and feet, and would doubtless have accomplished a more complete arrangement, had he uniformly adhered to the same principle; but in compliance with the prejudices of his time, he assumes the different kinds of food, the varieties of size, the nature of the flesh, and even moral qualities, as the grounds of subdivisions. At all events, however, he has the credit of having opened a career, which others have successfully pursued. His second and third books contain the description and history of the species, distributed according to the rules laid down in the first. To the exposition of each genus are prefixed two chapters of general observations; the first including the vague or fabulous accounts of the ancients, and the second such common properties as appertain to the genus. The author then proceeds to the specific details, stating the most important particulars with precision and neatness, and concluding with an account of peculiar habits.

9 Ray.

Ray, in his *Synopsis Avium*, follows, with a few exceptions, the method of his friend, referring at the same time to the tail feathers, and some parts of the internal conformation. The latter, we need scarcely remark, cannot with any propriety be adopted as generic or specific characters.

10 Barrere.

The new method of classing birds proposed by Monsieur Barrere in 1745, implies either a total ignorance or blameable neglect of the writings of Willoughby and Ray. As its only tendency was to confuse and perplex, we forbear noticing its details. Suffice it to remark, that it includes the peacock and man-of-war bird in the same family, and ranks the yellow-hammer between the bustard and the ostrich. In his Essay on the Natural History of Guiana, the same author enumerates the birds in alphabetical order; but his catalogue has been more than doubled by subsequent travellers.

11 Klein.

Jacob Theodore Klein, member of several learned academies, published at Lubeck in 1750 a quarto volume, entitled, *Historiæ Avium Prodromus, cum præfatione de ordine animalium in genere.* In this work he divides birds into families, orders, and tribes. His eight families are distinguished by the conformation of the feet, his orders by the form of the bill, and his tribes, sometimes by the form and proportions of the head, sometimes by accidental differences of the bill, and sometimes by the author's own fanciful ideas. From too great an anxiety to simplify, this naturalist is generally too brief, and adds to his obscurity by an affectation of learned phraseology.

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12 Mœhring.

This last mentioned quality likewise disfigures the scientific catalogue of Mœhring, physician to the prince of Anhalt, which appeared in 1752. His classes, orders, and genera, are founded on the formation of the feet and bill; and his descriptions of birds examined by himself, are usually accurate; but he is often misled by the errors of others, and the method which he proposes is complex and incommodious.

13 Linnæus.

In this summary of celebrated systematic ornithologists, we may assign to Linnæus the date of 1766, when he published the 12th edition of his *Systema Naturæ*. In so far as that astonishing body of arrangement respects the feathered tribes, it certainly manifests at once the extent and minuteness of the author's discriminating powers. As the same nomenclature and divisions are still the most familiar to British naturalists, we purpose to be chiefly regulated by them in the sequel, and consequently shall, for the present, wave any explanation of the Linnæan arrangement.

14 Salerne.

M. Salerne physician at Orleans, left behind him a MS. treatise on Ornithology, which was published by his friends in 1767. His method is that of Ray. The historical part is from the pen of Salerne himself; but the body of the text is a promiscuous and clumsy compilation. The typography is executed with neatness and elegance, and the plates, which are 31 in number, are engraved with uncommon skill; though the larger birds are for the most part represented on too small a scale.

15 Brisson.

M. Brisson of the Royal Academy of Sciences, published, in 1760, A System of Ornithology, in Latin and French, in six quarto volumes. He distributes birds into 26 orders, instituted from the form of the feet, bill, &c. 115 genera, which are determined by the peculiarities of the bill or mandibles, and about 1300 species. Each article is preceded by a numerous and accurate list of references and figures; many species, till then undescribed, are particularized; and the work is illustrated by upwards of 220 excellent engravings. The principal merit of Brisson's plan consists in the adoption of external and permanent characters, which enable the student to assign the name and station of a bird which he sees for the first time. The descriptions are equally accurate with those of Willoughby, and more copious. Though not exempt from errors and defects, this work still holds a respectable rank in the library of the ornithologist.

16 Buffon.

The Natural History of Birds, by the Comte de Buffon and his learned associates, is too generally known to require our analysis or criticism. Its great defect is want of scientific arrangement, a want which is scarcely redeemed even by the popular, luminous, and elegant style of the descriptions, combined with the highly finished execution of the coloured plates. With the exception, however, to which we have just alluded, we feel no hesitation in adopting the language of the English translator. "The history of birds possesses every quality that could recommend it to the public: it exhibits a clear and comprehensive view of the knowledge acquired in ornithology, scattered through a multiplicity of volumes, and

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in various languages, it diſcuſſes and elucidates with critical accuracy, the numerous controverted points; it reduces the whole to ſimplicity, order, and elegance; and, by large additions of valuable matter, it greatly extends the bounds of the ſcience."—"M. de Buffon was not to be deterred by the difficulty and extent of the undertaking. The correſpondents of the king's cabinet continued to tranſmit numerous communications, and ſpecimens from all parts of the world. Above eighty artiſts were, under the direction of the younger M. Daubenton, employed five years in the drawing, engraving, and colouring, of upwards of a thouſand birds. But the commencement of the work which theſe were intended to illuſtrate was delayed two years, by reaſon of a ſevere and tedious indiſpoſition, which during that ſpace afflicted the excellent naturaliſt. And after he had recovered his health, he reflected that at his advanced period of life he could not reaſonably expect to be able to accompliſh the hiſtory of birds, and alſo that of minerals, in which he had already made ſome advances. He judged it expedient therefore to have recourſe to the aſſiſtance of his friends; and he was peculiarly fortunate in the choice of the learned and eloquent M. Guenean de Montbeillard, who cheerfully undertook the laborious taſk, and compoſed the greateſt part of the two firſt volumes of the Hiſtory of Birds, which appeared in 1771, under the name however of M. de Buffon. In his complexion of thought and mode of expreſſion, M. de Montbeillard followed ſo cloſely his illuſtrious aſſociate, that the public could not perceive any change. It was now proper to throw off the maſk; and in the publication of the four ſubſequent volumes, each author prefixed his name to his own articles. The third volume was nearly printed when new aſſiſtance was received from the communications of James Bruce, Eſq. of Kinnaird. That accompliſhed and adventurous traveller, in his return from Abyſſinia, paſſed ſome days with M. de Buffon at Paris. The count was filled with admiration on ſeeing the numerous and elegant drawings which Mr Bruce had made of natural objects; and on ſeveral occaſions he mentions the explorer of the ſource of the Nile in terms the moſt flattering and reſpectful. After the publication of the ſixth volume in 1781, M. de Montbeilland was deſirous of devoting the whole of his leiſure in compoſing the Hiſtory of Inſects, which had become his favourite ſtudy. The three remaining volumes were therefore written by M. de Buffon himſelf; though he acknowledges that the Abbé Bexon had collected the nomenclature, formed moſt of the deſcriptions, and communicated ſeveral important hints. The work was completed in 1783; and as only a few copies of the illumined plates were on ſale, and theſe extremely coſtly, a ſmall ſet of engravings were made, to accommodate ordinary purchaſers."

Sonnini's recent edition of Buffon's Natural Hiſtory contains many valuable additions; and forms, perhaps, one of the moſt complete works of the kind that has yet appeared. In the department of ornithology, it preſents us with deſcriptions and figures of every bird to which the editors could have acceſs, either in the living or preſerved ſtate, or of which they could be favoured with drawings.

17 Mauduyt.

Mauduyt's Dictionary of Ornithology, which makes part of the *Encyclopédie Méthodique*, deſerves to be particularly quoted, on account of the preliminary diſcourſes, the accuracy of the deſcriptions and references, and the correct execution of the plates. The whole forms an excellent collection of the moſt important particulars which lay within the author's reach; and we have occaſionally availed ourſelves of his labours in the compilement of the preſent article.

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18 Gerini.

A ſeries of ſplendid plates was executed at Florence, in illuſtration of Gerini's Ornithology; but they betray, in general, a diſregard of nature, and are, in many inſtances, merely copied from imperfect drawings or inaccurate engravings. Gerini's nomenclature is, likewiſe, very faulty, and too frequently confounds ſpecies and varieties.

19 Pennant.

In 1773, the ingenious and indefatigable Mr Pennant publiſhed a ſmall volume, entitled, *Genera of Birds*. In his preface, he enters into a minute account of the external parts of birds, their feathers, flight, nidification, &c. In his ſelection of ſyſtematic arrangement, he gives the preference to that of Ray, whoſe plan appears to him to be ſo judicious, that it is ſcarcely poſſible to make any change in it for the better. At the ſame time, he admits, that later diſcoveries had made a few improvements on his labours. "My candid friend, Linnæus," adds Mr Pennant, "will not take it amiſs, that I in part, neglect his example; for I permit the *land-fowl* to follow one another, undivided by the *water-fowl* with pinnated feet, placing them between the *waders* or *cloven-footed* water-fowl, and the web-footed. The *oſtrich*, and land-birds with wings uſeleſs for flight, I place as a diſtinct order. The *trumpeter* (*Pſophia Linnæi*) and the *buſtards*, I place at the end of the gallinaceous tribe. All are land-birds. The firſt *multiparcus*, like the generality of the gallinaceous tribe; the laſt granivorous, ſwift runners, avoiders of wet places; and both have bills ſomewhat arched. It muſt be confeſſed, that both have legs naked above the knees, and the laſt, like the *waders*, lay but few eggs. They ſeem ambiguous birds, that have affinity with each order; and it is hoped, that each naturaliſt may be indulged the toleration of placing them as ſuits his own opinion." Mr Pennant's grand diviſions, then, are into *land-birds*, and *water-fowl*. The firſt he diſtributes into the ſix following orders. 1. *Rapacious*, 2. *Pies*, 3. *Gallinaceous*, 4. *Columbine*, 5. *Paſſerine*, and 6. *Struthious*. The ſecond comprehends, 7. *Cloven-footed*, or *Waders*, 8. thoſe with *Pinnated feet*, and 9. the *Web-footed*.

20 Latham.

In 1781, Dr Latham commenced his *General Synopſis of Birds*, a work of much accurate detail, and extending to three double quarto volumes, with two of ſupplement. Admitting the primary diviſion of Ray, he adheres, with a few exceptions, to the Linnæan genera, which as well as the ſpecies, his opportunities of reſearch enabled him to multiply to a very conſiderable amount. Each genus is illuſtrated by one coloured copperplate at leaſt, uſually of ſome rare ſpecies. Of theſe plates, however, the execution is ſometimes coarſe or meagre; and candour will not permit us to compliment the author on the purity or correctneſs of his ſtyle. His volumes, nevertheleſs, conſtitute a precious repoſitory of deſcriptions and facts, and muſt always hold a diſtinguiſhed place in the library of the ornithologiſt. Dr Latham is likewiſe the author of an *Index Ornithologicus*, which forms a convenient compend of his larger work, being compriſed in two quarto volumes.

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About two years ago, Sebaſtian Gérardin de Mirecourt publiſhed an "Elementary View of Ornithology, or the Natural Hiſtory of thoſe Birds which uſually occur in France," &c. This gentleman appears to have been born and bred in the department of the Vôges, in which he diſcharged the duties of profeſſor of natural hiſtory, and which is known to contain a greater diverſity of the feathered race than almoſt any province in Europe. His preliminary diſcourſe explains the general topics of ornithology in language at once ſuccinct and perſpicuous. The five chapters of which it conſiſts were ſubmitted to the reviſion of the eſtimable Daudin, whoſe premature death his friends and ſcience will long deplore. The arrangement of the work, which is limited to two octavo volumes, and a thin quarto volume of plates, has been chiefly regulated by that of Cuvier, in his Sketch of the Natural Hiſtory of Animals; but M. Gérardin has ventured to introduce a few occaſional alterations, which were ſuggeſted in the courſe of his teaching in the central ſchool, and which he conceived would facilitate the progreſs of his pupils. His ſynonymy is that of Linnæus and Briſſon; and his deſcriptions are generally minute, diſtinct, and accurate. On the whole, however, the reader is entitled to expect more copious information relative to the manners and habits of many of the ſpecies, than will be found in theſe reſults of thirty years application to the ſubject, combined with many favourable opportunities. We have alſo remarked a want of uniformity and preciſion in ſome of the author's ſtatements. The engravings are chiefly valuable on account of the correctneſs of their outlines.

21 Gérardin.

22 Hernandez. Of the numerous writers who have treated of the birds of particular countries, we may obſerve, that Hernandez, a Spaniſh phyſician, has deſcribed thoſe of Mexico. His work conſiſts of 229 chapters, each of which, generally, treats of a ſingle ſpecies. As they are, however, deſigned only by their Mexican names, and deſcribed with too much brevity, their preciſe ſtations in the Linnæan arrangement are with difficulty aſcertained.

23 Nieremberg. Similar objections apply to the work of Nieremberg, who has deſcribed the birds of the ſame country. From both we may infer, that the feathered tribes in Mexico are numerous, and diverſified with the moſt brilliant colouring; and that the natives had made conſiderable progreſs in the ſtudy of their hiſtory.

24 Marcgrave. Brazil preſents a ſtill more rich and ſplendid field to the reſearches of the ornithologiſt; but Marcgrave, who profeſſes to delineate its natural hiſtory, and allots his fifth book to the birds, is not leſs defective than the two writers whom we have juſt mentioned. His plates are not only wretchedly executed; but frequently do not correſpond with the deſcriptions.

25 Sloane. Sir Hans Sloane, in his Hiſtory of Jamaica, has repreſented 44 ſpecies of birds, in 18 plates, annexed to the ſecond volume; but it is ſeldom that the reader can rely on the accuracy of his delineations.

26 Cateſby. To Mr Cateſby of the Royal Society, we are indebted for an excellent account of the birds of Carolina, Florida, and the Bahama iſlands, in two volumes imperial folio, in French and Engliſh. The firſt volume, and part of the appendix in the ſecond, are devoted to the birds. The deſcriptions are conciſe and perſpicuous, and accompanied with ſome intereſting notices relative to the manners and habits of the ſpecies deſcribed. The plates, which are numerous, are generally faithful repreſentations of the originals, and admirably well coloured. The method followed in theſe ſplendid volumes, approaches ſomewhat to that of Willoughby. Introduction.

27 Schwenckfel. Schwenckfel a phyſician, who publiſhed in 1603, a natural hiſtory of Siberia, in two quarto volumes, includes the birds in his fourth book. His enumeration and deſcription of the parts which belong to birds in common with other animals, and of the appropriate parts of the organization of the former, are neat and accurate. His differences, founded on habitation, food, &c. are leſs valuable. The introduction is followed by the enumeration of birds, in alphabetical order, according to their Latin names. The deſcriptions, though accurate, are for the moſt part, too ſhort; and though adequate to recall a bird already known, are not ſufficient to convey a preciſe notion of thoſe which are deſcribed for the firſt time. The hiſtorical portion is too much condenſed; and with facts which are calculated to excite intereſt, the author often blends ſuch as are ſuperfluous, or improbable.

28 Brunnich. M. Brunnich publiſhed in 1764, an account of the birds of Denmark, and the neighbouring iſlands and provinces. In moſt inſtances he follows the Linnæan nomenclature, and ſometimes the ſynonymy of Briſſon. He chiefly dwells on the rare and non-deſcript ſpecies, but even then ſeldom enters ſufficiently into detail, to enable the ſtudent to aſcertain the ſpecies in queſtion.

29 Sonnerat. M. Sonnerat, correſponding member of the Royal Academy of Sciences of Paris, publiſhed, in 1776, an account of his voyage to New Guinea, the Molucca and Philippine iſlands, the iſle of France, and ſome other iſlands, in the Indian ocean; and in 1783, he favoured the world with a relation of his ſecond voyage, to ſeveral parts of the Eaſt Indies and China. Though this zealous and learned naturaliſt was prevented by want of time, from forming very extenſive collections, his deſcriptions and deſigns manifeſt both accuracy and taſte. Beſides correcting the errors of former travellers and voyagers, he has noticed a conſiderable number of birds for the firſt time, and moſt of them remarkable either for their ſingularity or beauty. His account of the wild cock and hen, the origin of our common domeſtic fowl, will be peruſed with peculiar intereſt.

30 Friſch. The ſplendid work of Friſch, a German naturaliſt, chiefly conſiſts of colcured plates of the birds of Europe, arranged in 12 claſſes according to diſtinctions which are ſometimes vague and incommodious. The figures are, for the moſt part, accurate and lively repreſentations from nature, though, in ſome inſtances they are larger than the life. The author has beſtowed particular attention on the different colourings of the two ſexes of the ſame ſpecies.

31 Le Vaillant. M. le Vaillant, author of a voyage to the Cape of Good Hope, and of the natural hiſtory of the birds of Africa, is eminently diſtinguiſhed by the ardour and acuteneſs with which he has proſecuted his ornithological reſearches, and has availed himſelf with laudable diligence of his rare opportunities of collecting accurate details relative to every ſpecies which he undertakes to illuſtrate. His natural hiſtory of the birds of paradiſe, rollers, promeropes, toucans, and barbets, is perhaps the moſt highly finiſhed and ſumptuous publication that has appeared in any of the departments of ornithology. The figures, about one hundred in number, are engraved by Pérée, from the drawings of Barraband, coloured by Langlois,

Introduction. Langlois, and retouched by the pencil of the original designer; while the elder Didot has executed the typography, in his beſt ſtyle, on vellum paper. Each figure is as large as life, and is uſually drawn from a ſpecimen in the higheſt ſtate of preſervation; and in many caſes, an exact repreſentation of the female bird has alſo been obtained. Though the pre-eminent merit of the work conſiſts in the figures and deſcriptions, it is in a few inſtances agreeably diverſified by traits of character, which the author remarked in the living bird, and by ſome intereſting hints of a more general complexion, which his accurate and extenſive obſervation enabled him to collect. We cannot, however, refrain from expreſſing a wiſh, that he had been more liberal of his ſynonyms and references, and that he had treated ſyſtematic writers with a little more reſpect. We ſhould not forget, that methodical nomenclature, though the reſult of art, and liable to many errors, is entitled at leaſt to ſubordinate regard, and as an unſpeakable aid to the memory. Even if we ſhould concede to our innovating author the propriety of thoſe more fanciful arrangements to which he manifeſts a predilection, it would ſtill admit of doubt, whether, on the whole, they would more accord with gradations unequivocally indicated by nature. Are we certain that, amid her countleſs productions, nature recognizes a ſingle line of demarcation? or, that the ſtudy of ornithology would be eſſentially promoted by claſſing the fifilet with the jays, or every individual furniſhed with parade feathers among birds of paradiſe?

32 Deſmareſt. The natural hiſtory of tanagers, todies, and manakins, by Anſeline Gaëtan Deſmareſt, with coloured engravings, from drawings by Paulina de Courcelles, pupil of Barraband, is another of thoſe recent and ſplendid productions of the Pariſian preſs, which reflect ſo much honour on the zeal, induſtry, and taſte of the French naturaliſts. The paper, type, and figures, all beſpeak the excellence of the reſpective artiſts who have produced them, as well as the love of chaſte and elegant embelliſhment which has preſided over the undertaking. The ornamental ſtyle of the work, however, is not its ſole paſſport to our favourable notice. The expoſition of the three genera mentioned in the title, is a ſubject which calls for much critical reſearch and laborious inveſtigation. M. Deſmareſt, without preſuming to extricate the whole nomenclature, lays down many important diſtinctions, and proceeds with circumſpection, ſo far as his opportunities have enabled him to advance. "Before we enter," ſays he, "on the details of the ſpecies, it may be proper to mention, that we ſhall limit our deſcriptions to thoſe which we have ſeen, and of which we have been enabled to exhibit figures. We ſhall, moreover, endeavour to analyſe, and if poſſible, to unravel the references of authors. Should ſucceſs thus far attend us, we conceive that we ſhall have duly performed the part of zealous naturaliſts." Beſides deſcriptions and plates of the male, the author has alſo, not unfrequently, repreſented the female, or young of the ſame ſpecies, or an individual as it appears in the moulting ſtate. His pages will afford leaſt entertainment to thoſe, who delight to obſerve the inſtincts and economy of the feathered race; and who ſhrink from the minute adjuſtment of claſſification and ſynonymy. It ought, however, to be remembered that few authentic facts have been collected relative to the hiſtory of theſe foreign birds; and that though future travellers may increaſe the ſcanty ſtock of intereſting notices, the exertions of the preſent author may not a little contribute to ſyſtematize and facilitate their obſervations. Introduction.

33 Edwards. The Natural Hiſtory of Birds, by George Edwards, in four quarto volumes, without any reference to country or method, contains many excellent coloured deſigns, and correct deſcriptions; and the ſame remark applies to his Gleanings of Natural Hiſtory, the moſt conſiderable portion of which relates to birds.

34 Britiſh ornithologiſts. Several of his countrymen have expounded or delineated the birds of our own iſland with more or leſs felicity of manner. The ornithological part of Pennant's Britiſh Zoology, Hayes's Natural Hiſtory of Britiſh Birds, with their portraits accurately drawn, and beautifully coloured from nature; Lord's Natural Hiſtory of Britiſh Birds, Lewin's Birds of Great Britain, with their eggs, in three volumes quarto, Walcott's Synopſis of Britiſh Birds, two volumes quarto, Bewick's Hiſtory of Britiſh Birds, with figures engraved on wood, &c. &c. are all entitled to critical notice; but the limitation of our plan forbids us to dwell on them. We ſhall, therefore, cloſe this portion of our introduction by pointing to a work which ſeems not yet to have procured its due ſhare of the public favour; we mean the Ornithological Dictionary, or Alphabetical Synopſis of Britiſh Birds, by George Montagu, F. L. S. &c. in two ſmall octavo volumes. We are acquainted with few publications of the kind that contain a larger quantity of accurate and important information within ſuch a narrow compaſs. As a book of reference and conſultation, it is well calculated to ſuit the occaſions of ordinary readers, and even to convey inſtruction to the learned ſtudent. The ſynopſis and ſpecific deſcriptions evince much diligence and accuracy; and various articles are enriched by the reſult of perſonal obſervation and extenſive travel. Sufficiently aware of the fallible indications of plumage, the writer is more ſolicitous to reduce than to multiply diſtinctions; and in doubtful caſes, has ſometimes had recourſe to the unequivocal teſt of diſſection. A few of the articles, however, are diſmiſſed with too much brevity, and the ſtyle is very deficient in poliſh and correctneſs.

35 Montagu.

If any of our readers are deſirous of procuring a more complete catalogue of works publiſhed on ornithology prior to the year 1760, they will find it in Gronovius's *Bibliotheca regni animalis atque lapidei, ac recenſio auctorum et librorum qui de regno animali et lapideo, methodicè, phyſicè*, &c. *tractant.*

36 General obſervations on birds. The ſtructure of the feathered tribes, and their habits of life, are wonderfully adapted to the various functions which they are deſtined to perform. The pointed beak, the long and pliant neck, the gently ſwelling ſhoulder, the expanſive wings, the tapering tail, the light and bony feet, are all wiſely calculated to aſſiſt and accelerate their motion through the yielding air. Every part of their frame is formed for lightneſs and buoyancy; their bodies are covered with a ſoft and delicate plumage, ſo diſpoſed as to protect them from the intenſe cold of the atmoſphere through which they paſs; their wings are made of the lighteſt materials, and yet the force with which they ſtrike the air is ſo great, as to impel their bodies forward with aſtoniſhing rapidity, while the tail ſerves the purpoſe of a rudder to direct them to the different objects of their purſuit. The internal ſtructure of birds is no leſs wiſely adapted to the

37 Suitable conformation.

ſame

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ſame purpoſes; all the bones are light and thin, and all the muſcles, except thoſe which are appropriated to the movements of the wings, are extremely light and delicate. The lungs are placed cloſe to the back bone and ribs. The air, entering into them by a communication from the windpipe, paſſes through, and is conveyed into a number of membranous cells which lie on the ſides of the pericardium, and communicate with thoſe of the ſternum. In ſome birds, theſe cells are continued down the wings, and extended even to the pinions, thigh bones, and other parts of the body, which can be filled and diſtended with air at the pleaſure of the animal. The feathers, too, and particularly thoſe of the wings, contain a great quantity of air. The almoſt univerſal diffuſion of this fluid in the bodies of birds is of infinite uſe to them, not only in their long and laborious flights, but likewiſe in preventing their reſpiration from being ſtopped or interrupted by the rapidity of their motion through a reſiſting medium. Were it poſſible for man to move with the ſwiftneſs of a ſwallow, the actual reſiſtance of the air, as he is not provided with internal reſervoirs ſimilar to thoſe of birds, would ſoon ſuffocate him.

38 Nutrition.

Birds, like quadrupeds, may be divided into granivorous and carnivorous. The former are furniſhed with larger inteſtines than thoſe of the latter. Their food, which conſiſts of grain of various ſorts, is conveyed entire into the firſt ſtomach, or craw, where it undergoes a partial dilution by a liquor ſecreted from the glands, and ſpread over its ſurface. It is then received into another ſpecies of ſtomach, where it is farther diluted, after which it is tranſmitted into the gizzard, or true ſtomach, conſiſting of two very ſtrong muſcles, externally covered with a tendinous ſubſtance, and lined with a thick membrane of prodigious power and ſtrength, in which organ the food is completely triturated, and prepared for the operation of the gaſtric juices. In order to aſcertain the ſtrength of theſe ſtomachs, Spallanzani had recourſe to a great variety of ingenious experiments. Tin tubes, full of grain, were forced into the ſtomachs of turkeys, and, after remaining 20 hours, were found to be broken, compreſſed, and diſtorted in the moſt irregular manner. In the ſpace of 24 hours, the ſtomach of a cock broke off the angles of a piece of rough jagged glaſs, though, on examining the gizzard, no wound or laceration appeared. In a ball of lead were fixed 12 ſtrong needles, with the points projecting about a quarter of an inch from the ſurface. Thus armed, the ball was covered with a caſe of paper, and forced down the throat of a turkey. The bird retained it a day and a half without manifeſting any ſymptoms of uneaſineſs, and the points of all the needles were broken off cloſe to the ſurface of the ball, except two or three, of which the ſtumps projected a little. The ſame intereſting obſerver relates, that he fixed 12 ſmall and very ſharp lancets, in a ſimilar ball of lead, which was given in the ſame manner to a turkey cock, and left eight hours in the ſtomach, at the expiration of which the organ was opened; but nothing appeared except the naked ball, the lancets having been broken to pieces, and the ſtomach remaining ſound and entire. Hence we may infer, that the ſtones ſo often found in the ſtomachs of many of the feathered tribes, may powerfully contribute to the comminution of grain and other hard ſubſtances which conſtitute their food.

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Granivorous birds partake much of the nature and diſpoſition of herbivorous quadrupeds, agreeing with them in the number of their ſtomachs, the comparative length and capacity of their inteſtines, the quality of their food, and the gentleneſs of their manners. Contented with the ſeeds of plants, with fruits, inſects, and worms, their principal attention is directed to procuring food, hatching and rearing their offſpring, and eluding the ſnares of men, and the attacks of predaceous animals. As they are generally tractable and eaſily domeſticated, man has ſelected for his own advantage thoſe which are moſt prolific and profitable. Of theſe the hen, gooſe, turkey, and duck, are the moſt conſiderable, and form a valuable ſtore of rich, wholeſome, and nutritious food.

Carnivorous birds are provided with wings of great length, the muſcles which move them being proportionally large and ſtrong, ſo that they are enabled to keep long on the wing, in ſearch of their prey. They are, beſides, armed with ſtrong hooked bills, and ſharp and formidable claws. They have large heads, ſhort necks, ſtrong and brawny thighs, and a ſight ſo acute and piercing, as to enable them to view their prey from the greateſt heights in the air, and to dart down on it with incredible ſwiftneſs and undeviating aim. Their ſtomachs are ſmaller than thoſe of the granivorous kinds, and their inteſtines are much ſhorter. The analogy between carnivorous birds and quadrupeds, is too obvious to eſcape the notice of even the ſuperficial obſerver. Both of them are provided with weapons which indicate deſtruction and rapine, their manners are fierce and unſocial, and they ſeldom congregate, like the inoffenſive granivorous tribes; but, when not on the wing, retire to the tops of ſequeſtered rocks, or to the depths of extenſive foreſts, where they conceal themſelves in ſullen and gloomy ſolitude. Such of them as feed on carrion, have the ſenſe of ſmelling ſo acute, that they can ſcent carcaſes at aſtoniſhing diſtances.

39 Flight and migration.

Without the means of conveying themſelves with great ſwiftneſs from one place to another, birds could not eaſily ſubſiſt, the food which nature has provided for them being ſo irregularly diſtributed, that they are obliged to take long journeys to diſtant parts in order to procure the neceſſary ſupplies. Hence one cauſe of of thoſe migrations which are ſo peculiar to the feathered race. Beſides the want of food, however, two other cauſes may be aſſigned, namely, the want of a proper temperature of air, and of a convenient ſituation for the important work of breeding and rearing their young. Such birds as migrate to great diſtances, are alone denominated *birds of paſſage;* but moſt ſpecies are more or leſs ſo, although they do not move to places remote from their former habitations. At particular periods of the year, moſt birds remove from one country to another, or from the more inland diſtricts towards the ſhores, or *vice verſa*. The ſeaſons of theſe migrations are obſerved with the moſt aſtoniſhing order and punctuality; but the ſecrecy with which immenſe flocks take their departure, and the ſuddenneſs with which they reappear, are not eaſily explained. We are alſo apt to ſuppoſe, that, during long flights over immenſe tracts of water, the means of ſubſiſtence would inevitably fail, without reflecting on the ſuperior velocity with which birds are carried forward in the air, and the eaſe with which they continue their exertions for a much

longer

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longer time than can be done by the ſtrongeſt quadruped. Our ſwifteſt horſes are ſuppoſed to go at the rate of a mile in ſomewhat leſs than two minutes; and there is one inſtance on record of a horſe that went at the rate of nearly a mile in one minute, but only for one ſecond of time. In ſuch caſes an uncommon degree of exertion has been attended with its uſual conſequences, debility, and a total want of power to continue that exertion; but the motions of birds are not impeded by ſimilar cauſes, and they not only glide through the air with a quickneſs ſuperior to that of the ſwifteſt quadrupeds, but can continue on the wing with equal ſpeed for a conſiderable length of time. Now, if we can ſuppoſe a bird to go at the rate of only half a mile in a minute, for the ſpace of 24 hours, it will, in that time, have gone over an extent of more than 700 miles; which is ſufficient to account for almoſt the longeſt migration; and, if aided by a favourable current of air, there is reaſon to believe, that it will perform the ſame journey in a much ſhorter ſpace of time.

The wings of birds are ſo conſtructed, that, in ſtriking downwards, they expand very conſiderably, and, except that they are ſomewhat hollow on the under ſide, they form, in this act, almoſt two planes. The muſcles that move the wings downwards are very large, and have been eſtimated, in ſome inſtances, at not leſs than the ſixth part of the weight of the whole body. When a bird is on the ground, and intends to fly, it takes a leap, ſtretches its wings from the body, and ſtrikes them downwards with great force. By this ſtroke, they are put into an oblique direction, partly upwards, and partly horizontally forwards. That part of the force which tends upwards is deſtroyed by the weight of the bird, while the horizontal impulſe ſerves to carry it forwards. The ſtroke being completed, it moves its wings; and they, being contracted, and having their edges turned upwards, meet with very little reſiſtance from the air. When they are ſufficiently elevated, it makes a ſecond ſtroke downwards, and the impulſe of the air again moves it forward. Theſe ſucceſſive ſtrokes act as ſo many leaps taken in the air. When the bird wants to turn to the right or left, it ſtrikes ſtrongly with the oppoſite wing, ſo as to impel the body to the proper ſide. If it wants to riſe, it raiſes its tail, and if to fall, depreſſes it. When in a horizontal poſition, the tail keeps the body ſteady. A bird, by ſpreading its wings, can continue to move horizontally in the air for ſome time, without ſtriking, becauſe it has acquired a ſufficient velocity; and the wings, being parallel to the horizon, meet with but ſmall reſiſtance. On alighting, it expands its wings and tail full againſt the air, that they may meet with all poſſible reſiſtance. The centre of gravity in birds is ſomewhat behind the wings; and, to counterbalance it, moſt of them may be obſerved to thruſt out their head and neck in flying. This is very apparent in the flight of ducks, geeſe, and ſeveral ſpecies of water-fowl, whoſe centre of gravity is farther backwards than in the land birds. In the heron, on the contrary, whoſe long head and neck, although folded up in flight, overbalance the reſt of the body, the long legs are extended, in order to give the proper counterpoiſe, and to ſupply what is wanting in the ſhortneſs of the tail.

40 Lubrication of the feathers.

The feathers of birds would conſtantly imbibe the moiſture of the atmoſphere; and, during rain, abſorb ſo much wet, as would almoſt, if not wholly, impede their flight, had not the wiſe economy of nature obviated this by a moſt effectual expedient. They are furniſhed on the rump with two glands, in which a quantity of unctuous matter is conſtantly ſecreting. This is occaſionally preſſed out by means of the bill, and uſed for the lubrication of the feathers. The birds which ſhare, as it were, the habitations of man, and live principally under cover, do not require ſo large a ſupply of this fluid, and, conſequently, are not provided with ſuch a large ſtock of it as thoſe that rove abroad, and reſide in the open element. Hence poultry, when wet, aſſume a ruffled and uncomfortable appearance.

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41 Nictitating membrane.

As birds are continually paſſing among hedges and thickets, their eyes are protected from external injuries, as well as from too much light, when flying in oppoſition to the ſun's rays, by a nictitating or winking membrane, which can at pleaſure be drawn over the whole eye like a curtain. This covering is neither opaque, nor wholly pellucid, but ſomewhat tranſparent. By means of it the eagle is ſaid to gaze at the ſun.

42 Song.

It appears from obſervations, founded on numerous experiments, that the peculiar notes, or ſong, of the different ſpecies of birds, are altogether acquired, and are no more innate than language is in man. The attempt of a neſtling to ſing, may be compared with the imperfect endeavour of a child to talk. The firſt eſſay ſeems not to poſſeſs the ſlighteſt rudiments of the future ſong; but, as the bird grows older and ſtronger, it is not difficult to perceive its aim. While the ſcholar is thus endeavouring to form his ſong, when he is once ſure of a paſſage, he commonly raiſes his tone, which he drops again when he is not equal to what he is attempting. A common ſparrow, taken from the neſt when very young, and placed near a linnet and goldfinch, though in a wild ſtate it would only have chirped, adopted a ſong that was a mixture of theſe two. Three neſtling linnets were educated, one under a ſky-lark, another under a wood-lark, and a third under a tit-lark; and, inſtead of the ſong peculiar to their own ſpecies, they adhered entirely to that of their reſpective inſtructors. A linnet, taken from the neſt, when but two or three days old, and brought up in the houſe of an apothecary at Kenſington, from want of other ſounds to imitate, almoſt articulated the words "pretty boy," as well as ſome other ſhort ſentences. Theſe and other well-authenticated facts ſeem to prove, that birds have no innate notes, but that the language of thoſe to whoſe care they are committed at birth, will be the language which they adopt in after life. It may, however, appear ſomewhat unaccountable why, in a wild ſtate, they adhere ſo ſteadily to the ſong of their own ſpecies only, when ſo many others are to be heard around them. This ariſes from the attention paid by the neſtling bird to the inſtructions of its own parent only, generally diſregarding the notes of all the reſt. Perſons, however, who have an accurate ear, and have ſtudied the notes of different birds, can very often diſtinguiſh ſome that have a ſong mixed with thoſe of another ſpecies; but theſe are in general ſo trifling as ſcarcely to be reckoned any thing more than mere varieties of provincial dialects.

43 Eggs.

All birds are oviparous, or produce eggs, from which, after the proceſs of incubation, the young are extruded. Theſe eggs differ in different ſpecies, in reſpect of number, figure, and colour. They contain the

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rudiments of the future young, for the maturation of which a bubble of air is always placed at the large end, betwixt the ſhell and the inſide ſkin. It is ſuppoſed, that, from the warmth communicated by the ſitting bird to this confined air, its ſpring is increaſed beyond its natural tenor, and at the ſame time its parts are put into motion by the gentle rarefaction. Hence preſſure and motion are communicated to the parts of the egg, and ſeem, in ſome unknown way, gradually to promote the growth of the young till the appointed time of exeluſion. Houſewives, when they ſuſpect an egg is not good, put their tongue to the great end, to feel if it be warm. If that is not the caſe, it is conſidered a certain proof, that the air, having, by degrees, effected its eſcape, the egg is at length become putrid or addled.

44 Neſts.

The neſts of birds are, in general, conſtructed with aſtoniſhing art, and with a degree of ſkill and neatneſs that often defies the efforts of the human hands. Both the male and female generally aſſiſt in this intereſting concern. They each bring materials to the place, as ſticks, moſs, ſtraws, &c. for the foundation and exterior; and hair, wool, or the down of animals or plants, to form a ſoft and commodious bed for their eggs, and for the tender bodies of their young when hatched. The outſide of the neſt uſually bears ſo great a reſemblance in colour to the ſurrounding foliage or branches, as not eaſily to be diſcovered even by perſons who are in ſearch of them.

45 Age.

The term of life varies greatly in birds, and does not ſeem to bear the ſame proportion to the time of acquiring their growth as has been remarked with regard to quadrupeds. Moſt birds acquire their full dimenſions in a few months, and are capable of propagation the firſt ſummer after they are hatched. In proportion to the ſize of their bodies, they poſſeſs more vitality, and live longer, than either man or quadrupeds. Notwithſtanding the difficulties which ariſe in aſcertaining the ages of birds, there are inſtances of great longevity in many of them, particularly geeſe, ſwans, ravens, and eagles, which have been known to attain to the age of ſeventy, fourſcore, or even a century. Pigeons uſually live more than 20 years, and even linnets and other ſmall birds have been kept in cages for nearly the ſame period.

46 Diſeaſes.

The diſeaſes to which birds, in their natural ſtate, are incident, are probably neither numerous nor formidable; at leaſt we ſeldom meet with individuals of the feathered race which ſeem to labour under ſickneſs or infirmity. In our northern latitudes they are indeed frequently ſubjected to the preſſure of cold and hunger; but the debility and other ſymptoms attendant on theſe external accidents, hardly deſerve to be noticed in a noſological point of view. Seclufion from the open air, and a total change of habits, induced by confinement and domeſtication, are uſually accompanied by appropriate diſorders, ſuch as the pip, or ſwelling on the extremity of the tongue, a ſoftening of the bill, a gradual decay of the feet, convulſions, and general pining. The moulting proceſs, from which none of the ſpecies are exempted, may alſo be regarded, in ſome meaſure, as a diſeaſed ſtate of the animal. All birds moult, or caſt their feathers once, and ſome twice, in the courſe of a year. This change takes place in autumn, or in the ſeaſon which correſponds to it in different climates, and uniformly after the breeding ſeaſon. Thoſe which moult twice a year, alſo change their feathers in ſpring. Moſt of the young males, which bear originally the plumage of the mother, aſſume, at their firſt moulting, the colouring which they afterwards retain; but ſome ſpecies do not put on their characteriſtic garb till the end of the ſecond, or even of the third year. Among thoſe which moult twice a year, both males and females change their plumage; but the latter retain the ſame markings, while the former exhibit a more gaudy covering in the ſeaſon which precedes their pairing, and a more ſober one, often ſimilar to that of the female, after the period of breeding. In moſt caſes, the feathers fall off in gradual ſucceſſion; but in ſome ſpecies nearly the whole plumage comes off at once, and is ſpeedily replaced. This periodical affection is always attended with more or leſs languor and depreſſion.

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47 Anatomy.

For the anatomy of birds, we beg leave to refer to the article *Comparative ANATOMY*; and ſhall cloſe this introduction by a brief explanation of ſome of the moſt important technical terms in ornithology, employed by Pennant and Linnæus.

48 Technical terms.

Plate CCCXCII. Fig. 1.

Fig. 1. *Cere* (*Cera*, Lin.),—the naked ſkin which covers the baſe of the bill in the hawk kind.

2. *Capiſtrum*,—a word uſed by Linnæus to expreſs the ſhort feathers on the forehead juſt above the bill. In ſome birds, theſe feathers fall forward over the noſtrils: they quite cover thoſe of the crow.

3. *Lore* (*Lorum*, Lin.),—the ſpace between the bill and the eye, generally covered with feathers; but, in ſome birds, as in the black and white grebe, naked.

4. *Orbits* (*Orbita*, Lin.),—the ſkin that ſurrounds the eye, which is generally bare, particularly in the heron and parrot.

5. *Emarginated* (*Emarginatum*),—ſaid of a bill which has a ſmall notch near the end, as that of the butcher bird, thruſh, &c.

6. *Vibriſſæ pectinatæ*,—ſtiff hairs which grow on each ſide of the mouth, formed like a double comb, as in the goatſucker, fly-catcher, &c.

7. *Alula ſpuria*, *Spurious* or *baſtard wing*,—a ſmall joint riſing at the end of the middle part of the wing, or the *cubitus*, on which there are three or five feathers.

8. *Tectrices primæ*, *Leſſer wing-coverts*,—the ſmall feathers which lie in ſeveral rows on the bones of the wings. The under coverts are thoſe that line the inſide of the wings.

9. *Tectrices ſecundæ*, *Greater coverts*,—the feathers which lie immediately over the quill-feathers and the ſecondaries.

10. *Primores*, *Quill-feathers* or *Primaries*,—the largeſt feathers of the wings, or thoſe that riſe from the firſt bone.

11. *Secundariæ*, *Secondary feathers* or *Secondaries*,—thoſe that riſe from the ſecond bone.

12. *Tail-coverts*, (*Uropygium*),—thoſe which cover the baſe of the tail on the upper ſide.

13. *Vent-feathers* (*Criſſum*),—thoſe which lie from the vent to the tail, underneath.

14. *Rectrices*, *Tail-feathers*.

15. *Scapulars*, or *Scapular feathers*,—thoſe which take their riſe from the ſhoulders, and cover the ſides of the back.

16. *Nucha*,—the hind part of the head.

17.

Introduction.

17. *Subulatum*, *Subulated* or *awl-ſhaped*,—applied to a bill that is ſtraight and ſlender, in the form of an awl.

18. *Pes ambulatorius*,—all the toes divided to the bottom.

19. *Pes greſſorius*,—the outer toe more or leſs united to the middle one, particularly conſpicuous in the feet of the king's fiſher.

20. *Pes ſcanſorius*,—formed for climbing, like the foot of the woodpecker.

21. *Pes lobatus*,—finned, or lobed, like thoſe of the grebes.

22. *Pes pinnatus*,—pinnated, or ſcolloped. The webs indented in the ſides, as in coots and ſandpipers.

23. *Pes tridactylus*, or *curſorius*,—wanting the back toe.

24. *Pes didactylus*,—compoſed of only two toes, as in the oſtrich.

25. *Pes ſemi-palmatus*, *Semi-palmated*,—when the webs reach only half the length of the toes.

26. *Ungue poſtico ſeſſili*,—when the hind claw adheres to the leg without any toe, as in the petrels.

27. *Digitis quatuor omnibus palmatis*,—all the four toes connected by webs, as in the corvorant.

Roſtrum cultratum,—when the edges of the bill are very ſharp, as in that of the crow.

28. *Unguiculatum*,—ſaid of a bill furniſhed with a nail at the end, as thoſe of ducks and gooſanders.

29. *Lingua ciliata*,—a tongue edged with fine briſtles, like that of the duck. Introduction.

30. *Integra*,—plain, or even.

31. *Lumbriciformis*,—when the tongue is long, round, and ſlender, like a worm, as that of the woodpecker.

Pedes compedes,—when the legs are placed ſo far behind as to make the bird walk with difficulty, or as if in fetters, of which we have examples in the auks, grebes, and divers.

32. *Nares lineares*,—when the noſtrils are very narrow, as in ſea gulls.

33. *Emarginatæ*,—with a rim round the noſtrils, as in the ſtare.

Iris, is that part which ſurrounds the pupil of the eye.

Mandibles, denote the upper and under parts of the bill.

Compreſſed,—vertically flattened at the ſides.

Depreſſed,—horizontally flattened.

Caruncula,—a fleſhy excreſcence on the head.

Hypochondria,—the hinder ſides of the breaſt and abdomen.

Ocellated,—with roundiſh concentric ſpots, of different colours.

Phalanges,—the articulations of the toes.

SYSTEMATIC EXPOSITION OF THE CLASS.

49 Orders.

ACCORDING to the Linnæan method, the claſs of *Aves*, or *Birds*, is diſtributed into ſix *Orders*, denominated *Accipitres*, *Picæ*, *Anſeres*, *Grallæ*, *Gallinæ*, and *Paſſeres*.

50 Accipitres.

ORDER I. ACCIPITRES.

THIS natural order includes birds of prey, that have the bill ſomewhat hooked downwards, the upper mandible dilated near the point, or armed with a tooth, the noſtrils wide, the feet ſhort and ſtrong, with four toes, three of which are placed forwards, and one behind; toes warty under the joints; claws hooked and ſharp-pointed. They live on other animals alive or dead, and are themſelves not eatable. They are monogamous, or live in pairs. The females are larger and more beautiful than the males, and generally lay about four eggs. This order includes *vultur*, *falco*, *ſtrix*, and *lanius*.

51 Vultur.

Gen. 1. VULTUR, *Vulture*.

52 Characters.

Bill ſtraight, hooked at the point; head bare of feathers.

Birds of this genus are diſtinguiſhed from eagles and hawks, by being gregarious, by the comparative heavineſs of their flight, and by their living on carrion. The females, too, are hardly larger than the males. Unleſs preſſed by hunger, they ſeldom attack living animals; they fly ſlowly, unleſs when very high in the air, and have an exquiſite ſenſe of ſmell. The tongue is large and fleſhy; the legs and feet are ſtrong, and moſtly covered with ſcales; and the wings are lined, on the inſide, with down.

53 Gryphus.

Condor, *condur*, or *cuntur*.—Very large, with a caruncle on the crown of the head, the whole of its length; the throat naked. Quills of the wings two feet and a half long, and an inch and a half thick; body black, back white; neck ruffed with long white feathers; throat red; head brown, and woolly; eyes black, irides cheſnut; bill black, but tipt with white; feet black; claws ſtraightiſh; tail ſmall.—The female differs from the male, in having a tuft on the neck, in its brown colour, and in having no ruff. Briſſon, however, has properly remarked, that the plumage of this ſpecies varies in colour, a circumſtance which will, in ſome meaſure, account for the diſcordant deſcriptions of different authors. At the ſame time, we muſt regret, that the hiſtory of this enormous bird is ſo imperfectly known. Its extent of wing is variouſly ſtated, from nine to eighteen feet; and, while Freſier aſcribes to it ſufficient ſtrength to carry off ſheep, and boys of ten years old, Marco Paolo ſturdily affirms, that it can lift an elephant from the ground high enough to kill it by the fall. Though very rare, Buffon ſuſpects that it is not confined to South America, and that it does not eſſentially differ from the *roc* of the eaſtern nations, ſo famous in the Arabian tales; nor from the *laemmer geyer* of the German Alps. A preſerved ſpecimen in the Leverian Muſeum meaſured ten feet, from the tip of one wing to that of the other. It is deſcribed and figured in the ſecond ſupplement to Latham's Synopſis. In Chili, the condors make their neſts among the moſt inacceſſible rocks, and lay two white eggs bigger than thoſe of a turkey. They feed on dead carcaſes, and ſometimes prey on ſheep, goats, or even young calves, when they ſtray far from their dams, falling on them in flocks, plucking out their eyes, and tearing them in pieces. The country people

Accipitres. use every means to destroy such formidable invaders of their property, and seem to have succeeded in expelling them from the populous districts of both continents.

54 *Papa.* *King vulture*, or *king of the vultures*.—Caruncles on the nostrils; crown of the head and neck bare of feathers. The extreme length of the body does not exceed two feet three inches, and it is not thicker than the hen turkey. Its wings are short in proportion to the other vultures. The bill is thick and short, and begins its curvature only at the point; in some individuals it is entirely red, in others only red at the extremity, and black in the middle. In the cere, which is broad and orange-coloured, are placed the nostrils; and between them the skin projects like a loose jagged comb, falling indifferently on either side, according as the bird moves its head. Under the naked part of the neck is a collar, or ruff, composed of pretty long soft feathers of a deep ash colour, and so broad, that when the bird contracts itself, it can conceal the neck and part of the head like a cowl, whence some naturalists have given it the name of *monk*. The feathers on the breast, belly, thighs, legs, and the under surface of the tail, are white, slightly tinged with yellow; those of the rump and upper surface of the tail, are black in some individuals, and white in others. The other feathers of the tail are always black, and so are the great feathers of the wings, which are commonly edged with grey. The king of the vultures is a native of South America and the West Indies, and lives on carrion, rats, lizards, snakes, and excrements of all kinds, from which circumstance it has a most offensive odour.

55 *Aura.* *Carrion vulture*, or *turkey buzzard* (*carrion crow* of Jamaica).—Body gray brown; quill feathers black; bill white; the sides of the head warted; legs flesh-coloured.—Common in the W. Indies, and in N. and S. America. Somewhat larger than the black eagle. Is protected in America for its use in devouring dead carcases and serpents, which it does, along with dogs, in the greatest harmony. It will seize meat from the shambles, breathes a most fetid odour, and, when taken, vomits up an intolerably stinking matter. Roosts by night, in flocks, on the highest branches of trees. They are generally very tame in their wild state, probably owing to their being more caressed than molested by man.

56 *Leucocephalus.* *White, ash-coloured*, or *Angola vulture*.—Body snowy; quill and tail feathers black; collar white; head and lower part of the neck covered with white down; middle toe covered with 11 distinct scales; claws black. About the size of a female turkey. The female exceeds the male in size, and differs chiefly in being less tinged with reddish. The young have the whole of the naked parts about the head covered with a grayish down.—This species is usually seen in pairs, and not in large flocks, like many of the genus; or, if 10 or 12 alight on one carcase, they are accidentally allured by the smell, which acts on their delicate organs at inconceivable distances. They feed on all manner of carrion, and on lizards, snakes, frogs, and even excrements. They build among the rocks, and lay four eggs. In some parts of Africa they are very common, and in others more rare. The natives tame and respect them, as they contribute to rid their grounds of nuisances. They likewise occur in Norway and Sardinia. Mr Latham supposes that this species is the *vautour de Norvège* of Buffon; the *facre d'Egypte* of the same author, perhaps the *Angola vulture* of Pennant, and the *rachamah* of Bruce. "When, however, (adds this celebrated ornithologist), the division of the *vulture* genus into real species may take place, is not for us to determine; the variety among individuals, from different periods of life, as well as the different appearances of those in a state of confinement, to what the plumage has, when at large, cannot fail to create no small difficulty; added to that, very few travellers are naturalists in a sufficient degree to discriminate one part of nature from another; besides, the subjects in question being mostly extra European, we cannot wonder at being so long in the dark." Accipitres.

57 *Percnopterus.* *Aquiline* or *Alpine vulture*.—The male of this species is almost wholly white; quill feathers black, with hoary edges, except the two outermost, which are wholly black. The female is all over brown, with the four outer quills black. In both the bill is black; cere yellow; nostrils constantly dripping moisture; feet naked. Inhabits Egypt, Palestine, Syria, and Persia. They fly in large troops, and are extremely useful in destroying mice, with which some countries, of which they are natives, are infested, such as Palestine. The same species, it is said, inhabits the Swiss Alps, where they are of an immense size. Some have been measured exceeding 12 feet from tip to tip of the wings. Plate CCCXCIII. Fig. 1.

58 FALCO.

Gen. 2. FALCO, *Falcon*.

Bill hooked, and furnished with a cere at the base; head covered with close-set feathers; tongue bifid.

59 Character. Though the birds of this genus are all carnivorous they seldom feed on carrion, except when pressed by hunger, which they can endure for a long time. They have a very acute sight, and pounce down on their prey with astonishing swiftness and force. From their great strength, they are capable of carrying birds nearly as heavy as themselves, to a great distance, for provision to their young. Their middle toe is slightly connected with the outermost.

A. *Bill hooked only at the point, bearded at the base with extended bristles.*

60 *Serpentarius.* *Snake-eater*, or *secretary vulture*.—Body black; hind-head crested; tail feathers white at the tips, the two middle ones longest; legs very long. Bill black, cere white; orbits orange, and naked; irides pale cinereous; tail rounded; legs brownish; claws short, black, hooked, not very sharp; crest capable of being erected or depressed.—In seizing its prey, this bird makes use of its wings, with which it inflicts violent blows by means of a bony protuberance at the bend of the wing. It is also by its wings that it defends itself against the bites of venomous snakes, until the latter, tired with their efforts, or nearly bruised to death, are easily dispatched. This species likewise preys on turtles, lizards, and even grashoppers and other insects. When in a domesticated state scarcely any kind of food comes amiss to it; and, if young birds are presented to it, it will take them by the bill foremost, and swallow them whole. One of those which Le Vaillant killed, had 21 young turtles, 11 small lizards, and three snakes, in his stomach. Like other birds of prey, it is observed to bring up the undigested parts of its food, in the form of round pellets. In pairing time, two males will often be found engaged in a violent contest for a female. The secretary vulture

is

Accipitres. is three feet high, remarkable for the length of its legs, and inhabits interior Africa and the Philippine iſlands. Theſe birds make a flat neſt, like that of the eagle, full three feet in diameter, lined with wool and feathers, in ſome high tuft of trees, and uſually concealed from obſervation.

61 *Harpeyia.* *Creſted* or *Oronooko eagle.*—Head creſted with long feathers; body beneath variegated; eyes with a nictitant membrane. Under the crop, white feathers, which, when the bird is irritated, fall to the ground. Erects the creſt in the form of a coronet, is ſaid to be able to cleave a man's ſkull at a ſtroke. Inhabits Mexico, Brazil, and other parts of South America, and is as large as a ſheep.

62 *Albicilla.* *Cinereous* or *white-tailed eagle: erne* of the Scots.—Cere and feet yellow; tail feathers white, the middle ones tipt with black; head and neck pale cinereous; irides and bill pale yellow; noſtrils, and the ſpace between the eyes, bluiſh, with a few briſtles; body and wings cinereous, mixed with brown; tail white; legs, below the knees, downy, gloſſy yellow; claws black. —Size of a turkey, feeds on birds and fiſh. Inhabits Europe, and frequently occurs in Scotland and the Orkney iſlands.

B. *Feet generally feathered, of a large ſize.*

63 *Melanætos.* *Black eagle.*—Cere yellow; feet yellow, and ſomewhat downy; body ruſty black, with yellow ſtreaks; bill horn colour, verging on blue; irides cheſnut; exterior part of the tail white, with blackiſh ſpots, tip whitiſh; legs dirty white; toes yellow, claws black. Two feet ten inches long. Inhabits Europe and America.

Plate CCCXCIII. Fig. 2.

64 *Oſſifragus* *Oſprey*, or *ſea eagle.*—Cere and legs yellow; feet half covered with down; body of a ruſty colour; inner vanes of the tail feathers white.—It is diſtinguiſhed by the colour and figure of its nails, which are of a ſhining black, and form an entire ſemicircle; by its legs, which are naked below, and covered with ſmall yellow ſcales; and by the beard of feathers which hangs from the chin, and which has occaſioned its receiving the name of the *bearded eagle*. It meaſures, from the end of the bill to the point of the nails, three feet and a half, and its wings expand to between ſix and ſeven feet. It loves to haunt the ſea ſhore, and often frequents inland tracts, near lakes, marſhes, or rivers that are ſtocked with fiſh; but, though it preys on the finny tribe, it alſo attacks game, and, being large and ſtrong, ſeizes and carries off geeſe and hares, and ſometimes even lambs and kids. It catches fiſh even during the night, when the noiſe of its plunging into the water is heard at a great diſtance. In attempting to lay hold of overgrown fiſh, it is ſometimes dragged under water, being unable to diſengage its talons. It inhabits Europe and North America, and was found by Captain Cook, in Botany iſland. It is not uncommon in Scotland and Ireland. "From the aſtoniſhing height (ſays Mr Montagu), theſe and ſome other birds fly, we are led to believe they are capable of living in a much lighter air than other animals. From the top of ſome of the higheſt mountains in Scotland we have ſeen ſeveral ſoaring together at ſo great a diſtance as to appear ſcarcely larger than a ſwallow."—The female ſea eagle ſeldom lays more than two eggs, and ſometimes produces only a ſingle young one.

65 *Chryſætos.* *Golden eagle.*—Cere yellow; feet downy, and ruſty-coloured; body dark brown, irregularly barred; tail black, and covered with aſh-coloured bars. It greatly reſembles the preceding, but is diſtinguiſhed from it chiefly by its legs, which are yellow, ſhort, ſtrong, and covered with feathers to the feet. The general length of this ſpecies is about three feet and a half; the breadth eight feet; and it uſually weighs about twelve pounds. It breeds in the moſt inacceſſible rocks, and lays three or four white eggs. It inhabits Europe and Siberia, and is ſaid to be not unfrequent in the mountainous parts of Scotland, Ireland, and Wales, though it has been frequently confounded with the ſea eagle It feeds on lambs, kids, and all kinds of game, and has been known to carry off infants to its neſt. It is remarkable for its longevity and abſtinence from food; ſome having been kept in menageries for upwards of a century; and Pennant records an inſtance of one which lived twenty-one days without any ſuſtenance whatever. It flies high, during ſerene weather, and deſcends nearer the earth in ſtorms.

66 *Fulvus* *Ring-tailed*, *white-tailed*, *black*, or *common eagle.*—Cere yellow; feet downy, and of ruſty a brown colour; back brown; tail with a white tranſverſe band. In the bill, cere, irides, and legs, it reſembles the preceding, to which it is alſo nearly equal in ſize; but the plumage is rather darker, and the tail is white for two thirds of its length. It inhabits Europe, Aſia, and America; and is trained by the Tartars to hunt hares, antelopes, and foxes. In Scotland, it is very deſtructive to deer, which it will ſeize between the horns; and, by inceſſantly beating it with its wings, ſoon makes a prey of the haraſſed animal. It likewiſe makes great havock among the white hares and ptarmigans. It builds in high precipices and cliffs; and the neſt of a pair has been obſerved in the ſame ſpot, in the Orkney iſlands, beyond the memory of man. Willoughby deſcribes a neſt of this ſpecies found in the Peak of Derbyſhire, as compoſed of large ſticks, lined with two layers of ruſhes, between which was one of heath. It contained one young, and an addle egg, and by them a lamb, a hare, and three heath pouts.—There is a variety, with a white tail, tipt with brown.

67 *Albus.* *White eagle.*—Entirely white. Inhabits the Alps; of the ſize of the golden eagle.

68 *Ferox.* *Fierce eagle.*—Cere green; body brown above; back, belly, and tail coverts ſnowy, variegated with cheſnut ſpots; tail feathers equal, brown, with four paler bands; bill leaden-black; eyelids blue; irides yellow; head and neck ferruginous, mixed with whitiſh; quill-feathers twenty-ſix, black above, white beneath, tipt with grey; tail feathers twelve, white beneath; claws ſharp; upwards of two feet long; very rapacious; inhabits Ruſſia, was found frequent near Aſtrachan in the winter of 1769; will not touch dead animals.

69 *Milvus.* *Kite.*—Cere yellow; tail forked; body brown; head whitiſh or grey; back and wing coverts duſky, edged with ferruginous, the under parts more or leſs ferruginous, ſtreaked with duſky, and lighteſt on the breaſt; quill feathers duſky black, with bars more or leſs obſcure; tail bright ferruginous; legs yellow; claws black. But there are ſeveral varieties. The female is ſomewhat larger than the male, meaſuring in length two feet four inches, and five feet ſix inches of outſtretched wing. It is readily diſtinguiſhed from its congeners by the remarkable forking of its tail, and by its ſmooth and even flight, which reſembles a ſailing or gliding through the air,

Accipitres. air, without any apparent motion of its wings. It frequently, however, ſoars very high, and, though beyond the reach of human viſion, will diſtinctly perceive its prey, and dart down on it with irreſiſtible force. Its attacks are confined to ſuch animals as are found on the ground, ſuch as young rabbits, hares, game of all kinds, poultry, and young birds incapable of flying. It will alſo deſtroy young lambs, and feed greedily on carrion; but, in default of theſe, will readily devour mice, rats, worms, and even ſnakes.—The kite occurs as far north as Greenland, and as far ſouth as Guinea and Senegal. It is common in England, where it continues the whole year; but from the more northerly latitudes, it retires to Egypt before winter, and is ſaid to breed there, and returns in April to Europe, where it breeds a ſecond time, contrary to the nature of rapacious birds in general. The neſt is compoſed of ſticks, and lined with wool, the inner bark of a tree, hair, and other ſoft materials, and is uſually made in the fork of ſome large tree. The eggs are generally three, rarely four, ſomewhat larger than thoſe of a hen, of a dirty white, with a few ruſty ſpots at the larger end.

70 *Haliætos.* *Bald-buzzard, oſprey, fiſhing hawk*, &c.—Cere and feet blue; body browniſh above, white below; head whitiſh; a brown bar deſcends from each eye by the ſides of the neck to the wings; legs naked, ſhort, ſtrong; claws remarkable long, hooked, and black. Inhabits Europe, Siberia, and America, frequenting marſhy places, and the neighbourhood of large rivers and lakes, pouncing on fiſh with great rapidity and dexterity, and carrying them off in its talons to a ſmall diſtance to feed on them. It builds its neſt on the ground among reeds, and lays three or four eggs of an elliptical form, rather leſs than thoſe of a hen. Mr Montagu found the neſt of this bird on the top of a chimney of a ruin in one of the iſlands of Loch Lomond. The uſual length of the bald buzzard is two feet, and its extent of wing five. The ſpecies is now rarely met with in England, but may be frequently ſeen near the lake of Killarney in Ireland. There are ſeveral varieties, among which may be included thoſe of Carolina and Cayenne. Some of the ancient writers, and even Linnæus, have very erroneouſly alleged, that the left foot of the bald-buzzard is ſubpalmated.

71 *Buteo.*

C. *Legs naked, of a ſmaller ſize.*

Buzzard, or *Puttock*.—Cere and feet yellow; body brown; belly pale, with brown ſpots. Scarcely any two individuals of this well known ſpecies are preciſely alike. The ordinary length of the body is twenty inches, and the extent of wing four feet and a half. The buzzard is one of our moſt common ſpecies of falcon. It is remarkable for its ſluggiſh, inactive diſpoſition, ſeldom remaining long on wing, except in the breeding ſeaſon, when it aſcends ſpirally to a great height. It makes its neſt in the fork of a tree, of large ſticks, and lines it with wool, hair, and other ſubſtances, and ſometimes takes poſſeſſion of a deſerted crow's neſt, which it accommodates to its purpoſes. The eggs are two or three, rather larger than a hen's, of a dirty white, and, for the moſt part, with ruſt-coloured ſpots at the larger end. It feeds and tends its young with great aſſiduity; and Ray affirms, that, if the female be killed, the male takes charge of them, and patiently rears them till they are able to provide for themſelves. This bird will continue for many hours perched on a tree or eminence, whence it darts on ſuch birds, ſmall quadrupeds, reptiles, or inſects, as come within its reach. Accipitres.

72 *Apivorus.* *Honey buzzard*.—Cere black; feet half naked, and yellow; head aſh-coloured; tail with cinereous bands, and tipt with white; of nearly the ſame ſize as the preceding, and, like it, ſubject to conſiderable varieties in its markings. Its neſt, in reſpect of form and materials, is ſimilar to that of the buzzard, and it ſometimes occupies that of other birds. Its eggs are of an aſh-colour, with ſmall brown ſpots. Mr White of Selborne found only one egg in the neſt, ſmaller, and not ſo round as that of the buzzard. The name ſeems to have been given it from its feeding on the larvæ of waſps; but it is alſo fond of various other inſects, and of field mice, frogs, and lizards. It occurs in all the northern parts of Europe, and in the open tracts of Ruſſia and Siberia, but is far from common in England. Buffon obſerves, that it is frequently caught in the winter, when it is fat and delicious eating.

73 *Æruginoſus.* *Moor buzzard, duck hawk*, or *white-headed harpy*.—Cere green; body browniſh; crown of the head, throat, axillæ, and feet, yellow. The colouring, however, is is ſubject to conſiderable variety. Length twenty-one inches; weight twenty ounces. Preys on rabbits, young wild ducks, and other water fowl; and likewiſe feeds on fiſh, frogs, reptiles, and even inſects; making its haunts in hedges and buſhes near pools, marſhes, and rivers. The neſt is moſt frequently made on the ground, among ſhort wood, furze, or fern, and ſometimes, though rarely, in the fork of a tree. It is compoſed of ſticks and ruſhes, or coarſe graſs. The moor buzzard is not a bird of rapid flight, but pounces its prey on the ground, and is generally ſeen ſkimming over the ſurface; but, in the breeding ſeaſon, the male will ſometimes ſoar to a conſiderable height, and remain ſuſpended on wing for a great length of time. Inhabits Europe.

74 *Palumbarius.* *Goſhawk*.—Cere black; feet yellow; body brown; tail feathers barred with pale bands, a white line over the eye; bill blue, black at the tip; irides yellow; head brown; body beneath white, waved with black; tail long, cinereous, and white at the tip; claws black. The wing, when cloſed, does not reach near the end of the tail; of an elegant ſlender ſhape, twenty-two inches long. Inhabits Europe, Tartary, and America; is rarely found in England, but is not uncommon in the more wooded diſtricts of Scotland, where it breeds, and is a great deſtroyer of game. It feeds on ſmall birds and mice, and eagerly devours raw fleſh. It tears birds to pieces before it eats them, but ſwallows the pieces entire, and frequently diſgorges the hair and feathers, rolled up in ſmall pellets. This ſpecies was formerly much prized in the ſports of falconry, being uſed not only for partridge and pheaſant, but alſo larger fowl, as geeſe and cranes, and ſometimes for rabbits.

75 *Gentilis.* *Gentil falcon*.—Cere and feet yellow; body aſh-coloured, with brown ſpots; tail with four blackiſh bands; ſomewhat larger than the preceding, though ſome ornithologiſts reckon it only a variety. It inhabits the Alps of Europe and North America. "In the days of falconry," obſerves the author of Elements of Natural Hiſtory, "this ſpecies was in high eſteem as a bold and ſpirited bird. It inhabits the north of Scotland. The king's falconer was anciently obliged to ſupply the court with hawks; and to this day the office is kept up

in

Accipitres. in Scotland; a neſt of young birds being annually preſented by the falconer to the barons of exchequer, who generally give them away in preſents."

76 *Peregrinus.* *Peregrine falcon.*—Cere and feet yellow; body aſh-coloured above with browniſh hands, reddiſh white beneath, with blackiſh bands; tail ſpotted with white. Weighs between two and three pounds, is a bold and powerful bird, and inhabits Europe, and the north of Aſia and America. It is not uncommon on moſt of our rocky coats, uſually frequenting ſuch high cliffs as the guillemot and razorbill reſort to for breeding. One that eloped from its maſter in the county of Forfar, on the 24th September 1772, with four heavy bells on its feet, was killed on the morning of the 26th of the ſame month, at Moſtyn in Flintſhire.

77 *Verſicolor.* *Spotted falcon.*—Cere yellow; head and body above, white, with pale reddiſh ſpots, white beneath; breaſt a little ſpotted with ferruginous. Size of the buzzard. Inhabits England; but its hiſtory is little known.

78 *Griſeus.* *Gray falcon.*—Cere and legs yellow; body duſky gray above, white, with oblong black ſpots beneath; tail feathers long, the two middle ones uniform, the reſt ſpotted. Bill blueiſh; irides red; head duſky brown before, white behind; ſides and chin buff, quill-feathers ſpotted with white. Inhabits England; but is very rare, and by ſome eſteemed only a variety.

79 *Candicans.* *Jer-falcon, gyr-falcon, Iceland falcon, white jer-falcon.* &c.—Cere and feet of a greeniſh aſh-colour; body white, ſpotted with brown. Bill blueiſh-aſh, black at the tip; claws lead colour. Larger than the goſhawk, and ſubject to variety, from age, ſex, and climate, ſome in the northern latitudes being found quite white, others brown above, white beneath, ſpotted with brown, and the tail gray, with tranſverſe brown lines. Inhabits Iceland and the north of Scotland, is a very bold bird, and in the days of falconry, was uſed for the larger ſpecies of game, as cranes and herons.

80 *Cachinnans.* *Laughing falcon.*—Cere and legs yellow; eyebrows white; body varied with brown and whitiſh; crown white, with a black ring. Back, wings, and rump brown; neck, chin, breaſt, belly, and under parts of the wings white; tail with yellow and black bands. Inhabits South America, and is ſaid to *laugh*, when looked at.

81 *Lanarius.* *Lanner.*—Cere dull yellow; bill and feet blue; body marked with black longitudinal ſpots underneath. A white ſtripe over each eye; breaſt yellowiſh white, with brown ſpots; legs ſhort; primary quill feathers and tail duſky, with ruſty oval ſpots: but there are two or three varieties. Rather leſs than the buzzard, has its name from tearing its prey into ſmall pieces with its bill. The lanner is very bold, and was formerly uſed in falconry. It is found in many parts of Europe; inhabits Iceland and the Ferroe iſles, Denmark, Sweden, and the Tartarian deſerts. It is rare in England, but is ſaid to breed in Ireland, and among the low trees and ſhrubs

82 *Cyaneus.* in the deſerts about Aſtracan. *Hen-harrier.*—Cere white; legs tawny; body hoary blue; edges of the eye-lids yellow, with an arched line ſurrounding the throat; bill black; irides yellow; hind part of the head white, with pale brown ſpots; breaſt and belly white, the former ſtreaked with duſky; two middle tail-feathers gray on both ſides, the reſt gray above, white beneath, and all ſtreaked with duſky. Theſe characters, however, are far from conſtant. This ſpecies, in its moſt perfect ſtate, weighs about thirteen ounces, and is eighteen inches and a half in length. It feeds on birds, lizards, and other reptiles, and is particularly deſtructive to poultry. It flies low, ſkimming along the ſurface in queſt of prey. The female neſtles on the ground, and lays four eggs of a reddiſh colour, with a few white ſpots. Inhabits Europe and Africa. Wallis, in his Natural Hiſtory of Northumberland, remarks, that it breeds annually on the Cheviot hills, and on the ſhady precipices under the Roman wall, near Craglake. Dr Latham and other eminent ornithologiſts have ſuppoſed, that this and the following are male and female; but the repeated inſtances of hen-harriers of both ſexes having been ſeen, leave it beyond all doubt that they conſtitute two diſtinct ſpecies.

83 *Pygargus.* *Ring-tail, ring-tail hawk, white-rumped bay falcon,* &c.—Cere and legs yellow; body cinereous; belly pale, with oblong ruſous ſpots; orbits of the eyes white. Bill pale; irides yellow; tail longiſh, banded with duſky, and dotted with white, the male marked with tranſverſe, and the female with longitudinal, ſpots beneath. Length 18 or 20 inches. Inhabits Europe, and the temperate parts of Siberia. Flies higher than the preceding, and ſometimes perches on trees. Its eggs are white, much freckled with red.

84 *Tinnunculus.* *Keſtril, keſtral, ſtonegall,* &c.—Cere and legs yellow; back purpliſh-red, with black ſpots; breaſt with brown ſtreaks; tail rounded. Crown of the head of a fine cinereous gray; greater quill-feathers black, very ſlightly tipped with whitiſh. Bill lead colour, irides duſky and large. The male weighs about ſeven ounces, and meaſures 13 inches in length. The female is conſiderably larger, and diſtinguiſhed from the other ſex by the head and tail being of the ſame colour as the back, which is not ſo bright a red brown as the male. Feeds principally on mice, in ſearch of which it is frequently ſeen hovering in the air and ſtationary for a great length of time. Preys alſo on ſmall birds and inſects, and was formerly uſed for catching game. Inhabits Europe, Siberia, and the more temperate parts of North America. One of our moſt common birds of prey, eſpecially among the rocks and cliffs of the coaſt, which favour its breeding. The neſt is of ſticks, and lined with wool and other ſoft materials; but it ſometimes builds on trees, or is contented with the deſerted neſt of a magpie or crow. The eggs are uſually four or five, of a dirty white, blotched with ruſt colour, of various ſhades.—It is a handſome bird, whoſe ſight is acute, and whoſe flight is eaſy and graceful. It includes two or three varieties.

85 *Piſcator.* *Fiſhing falcon.*—Legs brown; head ferruginous, with long feathers; body cinereous above, pale yellowiſh white beneath; tail pale brown above, blueiſh-aſh beneath. Bill and irides yellow; margin of the upper feathers ruſty brown, the under ſpotted in the middle with brown. Inhabits Senegal, where it is called *tanas*, preying chiefly on fiſh, which it takes out of the water, and retires to a convenient place to eat them piecemeal.

86 *Niſus.* *Sparrow-hawk.*—Cere green; feet yellow; belly white, waved with gray; tail with black bands. The weight of the male of this ſpecies is about five ounces, that of the female nine: the former meaſures in length about 12 inches, the latter 15. The male is inclined to ruſt colour on the breaſt, the female to whitiſh. On the back of the head, in both ſexes, is an obſcure broken patch of white. The quill feathers are duſky, barred

Accipitres. red with black on the outer webs, and ſpotted with white at the baſe of the inner. The legs are long, ſlender, and yellow. In ſome the back is ſpotted with white, and others have the body entirely of that colour. The ſparrow-hawk is very common in our wooded and incloſed diſtricts, but is leſs frequent in the more champaign parts. The female ſometimes builds her neſt in hollow trees, high rocks, or lofty ruins, but more frequently takes poſſeſſion of that which has been deſerted by a crow, laying four or five eggs, of a dirty white or blueiſh tinge, blotched at one of the ends with ruſt colour. It is very widely diffuſed over the world, from Ruſſia to the Cape of Good Hope. It is bold and ſpirited, making great deſtruction among pigeons, young poultry, and ſmall birds of all kinds, which it will attack and carry off in the moſt daring manner; at the ſame time, that it is obedient and docile, and can be

87 eaſily trained to hunt partridges, quails, larks, &c.

Subbuteo. *Hobby.*—Cere and feet yellow; back brown; neck white; belly pale, with oblong brown ſpots. Bill blue; orbits yellow; irides generally cheſnut; lateral tail-feathers with blackiſh bars; primary quill-feathers with oval reddiſh ſpots; claws black. The male weighs about ſeven ounces, and the female nine, or more. Inhabits Europe and Siberia, breeds in Britain, but leaves us the latter end of October. It builds in trees, and ſometimes takes poſſeſſion of a deſerted crow's neſt, laying three or four eggs, which are ſaid to be white. Though ſmall, it is inferior to none of the falcon tribe in courage, and will frequently pounce a partridge; but its favourite prey is the lark, which it terrifies to ſuch a degree, that it ſometimes flies to man for protection, and

88 will allow a net to be thrown over it.

Æſalon. *Merlin.*—Cere and feet yellow; head ruſty; body above, of a blueiſh aſh, with ſpots and ruſty ſtreaks; beneath, yellowiſh-white, with oblong ſpots. Bill blueiſh; irides duſky; tail alternately ſtreaked with duſky and reddiſh; claws black; eggs brown red. There are ſeveral varieties. The merlin is a ſmall ſpecies of falcon, being ſcarcely larger than the black-bird, but is very rapid on wing, and was eſteemed for its courage in hawking. It flies low, and is generally ſeen ſkimming along the ſide of a hedge, or over the ſurface of the ground, in purſuit of ſmall birds. Inhabits Europe; viſits the ſouth of England in October, about the time the hobby retires, but has never been obſerved to breed farther ſouth than Cumberland, where it has been found

89 more than once, with four young ones, placed on the ground.

Minutus. *Minute falcon.*—Cere brown; legs yellow; body white beneath; tail-feathers brown, banded with black. About 11 inches long. Inhabits Malta; and occurs, though rarely, in England.

90 *Pumilus.* *Tiny falcon.*—Legs yellow; body brown-aſh; beneath whitiſh, with blackiſh bars; crown whitiſh. Hardly ſix inches long. Inhabits Cayenne.

91 STRIX.

Gen. 3. STRIX, *Owl.*

92 Characters. Bill hooked; no cere; noſtrils oblong, covered with briſtly recumbent feathers; head, eyes, and ears large; tongue bifid.

Theſe are nocturnal birds, with the organs of viſion ſo conſtructed as to ſee in the dark. Their ſenſe of hearing is very acute, by means of a particular membrane at the opening of the external ear. They can move the outermoſt toe either backwards or forwards. They feed on carrion, living ſmall birds, hares, mice, field-mice, lizards, &c. When they venture abroad in day light, they are chaced, and inſulted by ſmaller birds, eſpecially by the crow. In their manner of life, round head, &c. they have ſome affinity to cats. During the winter, they live retired, faſting, or ſleeping in towers and old walls. Accipitres.

A. *Eared.*

93 *Great owl, great eared owl, great horned owl*, &c.—Body of a reddiſh, or tawny colour; irides yellow; head and body variegated with black, brown, aſh, and ruſty ſpots and lines; claws large, much hooked, and duſky. Liable to conſiderable varieties. Nearly the ſize of an eagle, and very ſtrong, preying on hares, rabbits, moles, rats, mice, and ſometimes bats and reptiles. It inhabits Europe, Calmuc Tartary, and South America, haunting mountainous rocks and caverns. Its neſt is nearly three feet in diameter, and compoſed of ſticks bound together by fibrous roots, and lined with leaves. It generally lays two eggs, ſomewhat larger than thoſe of a hen, and variegated, like the bird itſelf. The young are very voracious, and are plentifully ſupplied with food by the parents. This bird is by no means common in Great Britain, though it has been occaſionally ſhot both in England and Scotland. It endures day light better than moſt of the genus, flies low in the day, but ſometimes ſoars very high during the night. *Bubo.*

94 *Virginian eagle owl.*—Size of the common eagle owl; ear feathers large, riſe above the baſe of the bill which is black; irides golden yellow; upper part of the body brown, variegated with ſlender ruſous and cinereous lines; under part pale-aſh, tranſverſely ſtripped with brown; throat white; lower part of the neck and ſides of the breaſt orange brown, ſpotted with darker brown; quills and tail banded with brown; legs and half the toes covered with cinereous feathers; claws horn colour. Inhabits America, Kamtſchatka, and Aſtracan. Is a little ſmaller than the great horned owl, and is ſuppoſed by ſome to be only a variety. *Virginiana.* Plate CCCXCIII. Fig. 4.

95 *Ceyloneſe eagle owl.*—Bill horn colour; irides yellow; upper part of the body pale reddiſh brown, under part yellowiſh white; ears ſhort, pointed; firſt quills and tail barred with black, white, and pale red; legs naked to the knees. Length 23 inches; weight two pounds and near 10 ounces. Native of Ceylon. *Zeylonenſis.* Plate CCCXCIII. Fig. 3.

96 *Long-eared* or *horn owl.*—Ears with ſix feathers. Ears black and yellow; irides yellow; back and wing coverts duſky brown, gray, and yellowiſh-ruſty; breaſt and belly pale yellow, with brown longitudinal lines; tail barred with aſh-colour, and duſky; legs and feet feathered to the claws. About 14 inches long; but there is a variety that is much ſmaller, and another which is diſtinguiſhed by the greater darkneſs of the body. Diffuſed over the four quarters of the globe, frequenting foreſts and wooded tracts, and manifeſting a partiality to fir, box, or holly plantations, where it more readily conceals itſelf by day among the ever-green foliage. Its principal food is mice, and ſometimes ſmall birds taken at rooſt. It remains with us the whole year, and is frequently taken; yet little is known of its habits. *Otus.*

97 *Short-eared owl, hawk owl, mouſe hawk*, &c.—Ears ſhort; body above brown, feathers-edged with yellow; beneath pale yellow, with longitudinal duſky ſtreaks. *Brachyotus.*

Accipitres. streaks; head small and hawk-like; bill dusky; irides yellow. Length 14 inches, stretch of wing three feet. Inhabits Europe, Siberia, and America, chiefly in mountainous or wooded countries, and feeds principally on field-mice. Visits England in the latter part of the year, and disappears in spring. It flies by day, and is sometimes observed in companies. It is supposed to breed in the Orkneys, and probably in Norway, making its nest of dry grass, on the ground, and laying three or four white eggs.

98 *Scops.* *Little horned owl.*—Ears of one feather each. Gray, rufous, brown or blackish, according to age; legs spotted with brown; toes and claws brown. Between seven and eight inches long. Inhabits Europe, and preys on field mice.

B. *Earless.*

99 *Nyctea.* *Snowy*, or *great white owl.*—Body whitish, with a few brown lunated spots. Bill black, and almost hid in the feathers; irides yellow; legs covered with white feathers to the toes; claws black. This species is sometimes quite white, and sometimes varies with very numerous spots. About two feet long; flies abroad by day; preys on herons, hares, mice, and sometimes carrion, but is particularly fond of ptarmigans. Makes a howling noise. Inhabits the northern parts of Europe and America, particularly Sweden, Iceland, and Hudson's Bay, and sometimes, though rarely, Pennsylvania.

100 *Nebulosa.* *Gray* or *barred owl.*—Head, neck, breast, back, and wing-coverts brown, spotted with white; belly and vent dirty white, streaked with brown; tail with brown and whitish bands, tipt with whitish. Weighs about three pounds, is two feet long, and four in extent of wing. Feeds on hares, mice, and cranes. Inhabits Hudson's Bay and New York, and rarely occurs in England.

101 *Flammea.* *White* or *common owl.*—Body pale yellow, with white spots; beneath whitish, with black spots. Bill white; irides dusky; tail-feathers white within, with dusky lines on the outside; 14 inches long, and weighs about 11 ounces. This species is so well known, that we need not more minutely describe it. It inhabits Europe, America, and Northern Asia, and is by far the most common of British owls, being distinguished by various provincial appellations, as barn owl, gillihowlet, howlet, madge-howlet, church owl, hissing owl, screech owl, &c. It is partial to the habitations of man, and is rarely found in woods. Its ordinary haunts are barns, churches, old houses, and other uninhabited buildings, in which it continues during the day, but which it leaves in the evening, in quest of prey. Its flight is accompanied with loud and frightful cries, and its repose with a blowing noise, like the snoring of a man; when alarmed, it snaps its bill with great force. It makes scarcely any nest, but deposits five or six whitish eggs in the holes of walls. It feeds on mice, and small birds, which it swallows whole, and afterwards discharges the bones, feathers, and other indigestible parts, at its mouth, in the form of small round cakes, which are called *castings*, and some bushels of which are sometimes found in the hollows of decayed trees, near farm-houses or villages, in barns, out-houses, &c. When a pair have young ones, they sally out alternately in quest of food for them, and generally return every five minutes, with a live mouse. Dr Latham mentions, that he received a specimen from Jamaica, which differed in no respect from our common owl.—The white owl is very susceptible of domestication, when taken young. 102

Tawny or *brown owl*, *common brown* or *ivy owl*, *Stridula.* *black owl*, *howlet*, *wood owl*, &c.—Body ash-coloured, the third flag-feather the longest; plumage marked above with dusky spots and points; breast and belly yellowish, mixed with white; beneath with dusky streaks; irides dusky; tail with pale brown and black spots and lines. Fourteen inches long; stretch of wing two feet eight inches; weight of the female 19 ounces. Inhabits Europe and Tartary. This is another very common species. It resides chiefly in woods and plantations of fir; concealing itself in the thickest recesses; sometimes it settles on the ground, but if molested, takes shelter in a neighbouring tree. It is rarely seen on wing by day, except forced from its haunts, the light dazzling it to such a degree that boys hunt it down with sticks and stones. It breeds in the hollows of trees, and sometimes in barns, where it is protected by the farmer, as it is an excellent mouser. It lays two or three eggs of a roundish form, and dull white colour. It is the only species known to hoot, besides which, it makes a disagreeable screaming noise. It is a great enemy to young pigeons, leverets, young rats, &c. but chiefly subsists on mice.—"We have taken this bird", says Mr Montagu, "in its mature state, as well as young, and found no difficulty in either case of preserving them alive. They were never observed to drink; and indeed for many months together had no water offered them".—The *ulula* of Linnæus is now esteemed only a smaller variety of the *stridula*. 103

Little owl.—With white spots arranged in five rows *Passerina.* on the flag-feathers; bill whitish brown; irides pale yellow; head, back, and wing coverts pale brown, with white spots; breast whitish, variegated with rusty. Scarcely larger than a blackbird, but varies considerably both in respect of size and markings. Inhabits Europe, North America, and the West Indies. Is very rare in England, though it has sometimes been found in Yorkshire, Flintshire, and the neighbourhood of London. It is said to frequent ruined edifices in France, and to build in chimneys, in Carniola: but it frequently nestles in the holes of rocks and walls, and lays five or six eggs, spotted with yellowish and white. It can fly by day, and give chace to swallows and other small birds on wing, but mice are its principal food. 104

White-fronted owl.—Body rusty brown, paler beneath; *Albifrons.* forehead white; quill feathers barred with black and white. Only five inches long. Native of North America.

Gen. 4. Lanius, *Shrike.* 105 Lanius.

106 Character. Bill nearly straight, with a dent on each mandible, near the end, naked at the base; tongue jagged at the point.

The birds of this genus form a connecting link between the falcons and pies, and have been differently classed by different ornithologists. Though comparatively small, they are very courageous, will attack birds much larger than themselves, and are called *butcher birds*, because they frequently kill several, before they begin to feed. They fix on their victims with their talons, split the skull with their bill, and then feed on them at leisure.

Accipitres.

107 *Collaris.* *Collared ſhrike, canary biter* or *fiſcal.*—Tail wedged; body black, white beneath; firſt quill feathers white at the baſe; bill and head blackiſh; tail feathers, except the four middle ones, white at the tips. Very common at the Cape of Good Hope, alſo found in Senegal, and in the interior parts of Africa. Twelve inches long. Feeds on beetles, graſshoppers, and other inſects, which it not only catches with great dexterity; but when it cannot conſume them all, will ſtick them on the pales of farm yards, till it has occaſion for them. It alſo ſeizes on ſparrows and canary birds, of which it devours only the brains.

108 *Excubitor.* *Cinereous ſhrike, great cinereous ſhrike, greater butcher bird, mattageſs, night jar,* &c.—Tail ſomewhat cuneiform, white on the edges; back gray; wings black, with a white ſpot; bill black, with briſtles at the baſe; upper parts of the plumage of a pale blue aſh, the under parts white; legs black. The female differs chiefly in the under parts, which are of a dirty white, marked with numerous ſemicircular brown lines. There is a variety, with the body white, legs yelloviſh, and bill and claws blackiſh; and another with leſſer wing coverts and reddiſh ſhoulders. Inhabits Europe and North Ameriea. Is rather a ſcarce bird in England, but is ſaid to breed among ſome of our mountainous ſituations; coming in May, and departing in September. It makes a neſt of heath and moſs, lined with wool and goſſamer, and lays ſix eggs, of a dull olive green, ſpotted with black at the larger end. According to Buffon, it is common in France, where it continues all the year; it kills rats, mice, and ſmall birds, affixing its prey to a ſharp thorn, and tearing it in pieces with its bill; it is alſo ſaid to imitate the notes of ſome other birds, by way of decoying them to their deſtruction. Mr Pennant obſerves, that when kept in a cage, it ſticks its food againſt the wires before it will eat it.

109 *Collurio.* *Red-backed ſhrike, leſſer butcher-bird,* or *fluſter.*—Tail ſomewhat wedged; back hoary; four innermoſt tail-feathers of one colour; bill of a leaden hue. Irides hazel; head and lower part of the back of a light gray, upper part of the back and wing-coverts of a bright ruſty red; breaſt, belly, and ſides of a fine pale roſe, or bloom colour; a black ſtreak paſſes from the bill through the eyes; legs black. Length about ſeven inches; weight eight drams. The female weighs two drams more, and has all the upper parts of a ferruginous brown. The manners of this ſpecies are ſimilar to thoſe of the laſt. It kills ſmall birds by piercing the ſkull with its bill, and inſects by transfixing them on the thorn of the ſloe-buſh. It tears off the body of the chaffer, and leaves the elytra, wings, and head behind. It imitates the ſong of many of the ſparrow tribe, and thus entices them within its reach. It chiefly haunts incloſed moiſt ſituations, makes its neſt in ſome thick hedge, compoſing it very ſkillfully of moſs and fibrous roots put together with wool and lined with hair, and lays five or ſix eggs of a bluiſh-white colour, with a circle of brown near the broad end. It inhabits Europe and Africa, viſits Britain in May, and departs to ſome warmer climate in September. Among its varieties Gmelin includes *lanius rutilus* of Latham, or *woodchat*, which is very rare in this country.

110 *Tyrannus.* *Tyrant Shrike.*—Body cinereous, white beneath; crown of the head black, with a longitudinal tawny ſtreak. Eight inches long. There are ſeveral varieties, all natives of America and the Weſt Indies, and all of a fierce and audacious diſpoſition, fixing on the backs of other predacious birds, and making a continual chattering noiſe, till they force them to retire.

Picæ.

Order II. PICÆ.

111 Picæ.

112 Characters.

The diſtinguiſhing marks of this order are, a bill ſomewhat compreſſed, more or leſs crooked, and always convex; toes divided, and adapted either for climbing (*ſcanſorial*) or, for ſtepping, (*greſſorial*). Some feed on inſects, worms, and the fleſh and offal of other animals, and ſome on the ſeeds and juices of plants. During the breeding ſeaſon, they are monogamous, and make their neſts on trees; and during incubation, the female is often fed by the male. There are a few genera, however, which do not exactly correſpond with theſe characters.

Gen. 5. Psittacus, *Parrot.*

113 Psittacus.

114 Characters.

Bill hooked; upper mandible moveable, and, for the moſt part covered with a caſe; noſtrils rounded, and placed in the baſe of the bill, tongue fleſhy, obtuſe, entire; feet ſcanſorial.

This very numerous genus, which contains upwards of 140 ſpecies, is peculiar to the warmer regions of both worlds. The birds which belong to it, reſemble the accipitres in the form of the bill, but in their manners coincide with the other genera of this order. They feed on the ſeeds and fruits of various plants; are very docile, and by means of their obtuſe tongue, may be taught to imitate human ſpeech. They climb eaſily, aſſiſting themſelves with their bill. They aſſociate in pairs, and attain to a great age. Some ſpecies equal the domeſtic fowl in ſize, while others are no larger than a ſparrow. In Europe, they ſometimes lay eggs, but ſeldom ſit on them. In their native climates, the male and female ſit on them alternately.

A. *Tail long, and wedge-ſhaped.*

115 *Macao.* *Red and blue Maccaw.*—Quill-feathers blue above, ruſous beneath, ſcapulars varied with blue and green; cheek naked, wrinkled. Body ſcarlet; upper mandible white, lower black; temples white; wing-coverts generally yellow; tail long and red; feathers blue at the ſides. Two feet ſeven inches in length, ſize of a capon. Inhabits Braſil, Guiana, and other regions of South America, affecting moiſt palm woods, and living on the fruit of the trees. When driven by hunger to feed on the manchineel apple, its fleſh is poiſonous, though the bird itſelf receives no injury. Makes its neſt in decayed trees, enlarging the hole, if neceſſary, with its bill, and lining the inſide with feathers. The female lays two eggs at a time, about the ſize of thoſe of a pigeon, and ſpotted like thoſe of a partridge. Breeds twice a year, the male and female ſitting on the neſt alternately, and reciprocally nurſing and feeding the young birds. The latter are tamed with great eaſe, and may even be taught to ſpeak, but the old birds are clamorous and unmanageable. Though the fleſh is hard, black, and unſavoury, it makes good ſoup, and furniſhes a great part of the food of the inhabitants of Cayenne, as well as other parts of South America. Like other parrots it is ſubject to fits when kept tame. The ſtrength of its

Picæ.

its bill is ſufficient to break a peach-ſtone with great eaſe.

116 *Aracanga.* *Red and yellow maccaw.*—Pale ſcarlet; ſcapulars yellow, tipt with green; quill feathers blue above, rufous beneath; cheeks naked and wrinkled. Size of the preceding. Inhabits Guiana, Braſil, and Jamaica.

117 *Tabuenſis.* *Tabuan parrot.* Head, neck, breaſt and belly, purple; back and wing-coverts green; crown terminated by a lunular blue mark; firſt quill-feathers and greater part of the tail blue. Length, 19 inches. A beautiful ſpecies, found at Tonga Taboo, and the other Friendly iſles in the South ſeas. The green variety, with the head, neck, breaſt and belly, ſcarlet; occurs in New South Wales.

118 *Elegans.* *Beautiful parrot.*—Head, neck, and body, red beneath, brown above; interſcapulars pale blue, mixed with red; tail greeniſh-brown, tipt with white. Varies, with the wings, tail, and body green above. From 12 to 15 inches long. Inhabits the Molucca iſlands.

119 *Pennantii.* *Pennantian parrot.*—Scarlet; fore part of the back black, waved with ſcarlet; ſides and throat blue; quill-feathers each with a white ſpot. There is a variety with a pale band in the middle of each wing. The female has the upper parts of the neck and body greeniſh, top of the head red, and a patch of the ſame colour under each eye; chin and throat blue; lower part of the neck and breaſt, as alſo the rump and vent, red; middle of the belly duſky green; tail dark blue, fringed with cheſnut; ſhoulders blue, and the reſt of the wing the ſame, but darker. Fifteen inches long. Inhabits New South Wales.

120 *Glorioſus.* *Splendid parrot.*—Bright blood-red; back feathers edged with black; chin, wings, and tail blue. Sixteen inches long. Inhabits New Holland.

121 *Ornatus.* *Orange-billed parrot*, or *long-parrakeet.*—Of a yellowiſh green colour; the hind part of the head, the throat, and breaſt red; crown of the head and ears blue, with aſh-coloured orbits. Eight inches long. Inhabits India. Like other ſmall ſpecies with long tails, is not eaſily taught to ſpeak.

122 *Murinus.* *Gray-breaſted parrakeet.*—Olive; face, chin, and breaſt mouſe-colour, quill-feathers green. Bill and legs gray; tail five inches long. About the ſize of a thruſh. Tame and gentle, and eaſily taught to articulate. Common at Monte Video.

123 *Cornutus.* *Horned parrot.*—Green; head ſcarlet, with two long feathers ſtanding out like horns; collar and rump ſtraw-colour; outer edge of the quill and tail feathers blue. Bill and legs black blue; temples orange; irides golden; wing-coverts at the tips and within duſky; tail black beneath. Length 11 inches, ſize of a ſmall dove. Inhabits New Caledonia. Figured in Latham's Synopſis.

124 *Formoſus.* *Ground parrot*, *New Wales parrot*, or *black-ſpotted parrakeet of Van Diemen's Land.* Green; four middle tail-feathers barred with green and black, the reſt with black and yellow; bill and legs black; tail much wedged. This is a moſt elegant and beautiful ſpecies, about 12 inches long, inhabiting New South Wales, and other parts of New Holland, where it is known by the name of *goolingnang*. It is rarely ſeen, except on the ground, particularly in moiſt places. It is not known to perch on trees like other parrots, but riſes from among the graſs, and immediately alights in it again. The legs and toes are more ſlender than uſual in this genus, and the claws more ſtraight.

Picæ.

125 *Taitianus.* *Otaheite parrakeet.*—Blue; feathers of the head long; chin and throat white; bill and legs red. Tongue fringed at the end; only five inches long; inhabits Otaheite, and feeds on the fruit of the banana.

B. *Tails ſhort, and even at the ends.*

126 *Bankſii.* *Bankſian cockatoo.*—Splendid black; creſt ſmall; head and wing-coverts dotted with buff; outer tail-feathers ſcarlet in the middle, barred and tipt with black. Nearly three feet long, but varies both in ſize and markings. Inhabits New Holland, and was brought to England by Sir Joſeph Banks. Figured in Latham's firſt Supplement.

127 *Criſtatus.* *Great white cockatoo*, or *yellow-creſted cockatoo.*—White; creſt folding, and yellow. Bill, cere, irides, legs and claws black; orbits naked and white; quill and lateral tail feathers, from the baſe to the middle ſulphureous on the inſide; feathers of the neck looſely flowing; creſt five inches long, and erectable. Length 18 inches; ſize of a domeſtic ordinary fowl. This, and ſeveral other ſpecies frequently repeat the word *cockatoo*. Inhabits the Molucca iſlands.

128 *Erythacus.* *Aſh-coloured* or *hoary parrot.*—Bluiſh-gray; temples naked and white; tail ſcarlet. Bill black; cere white; irides yellowiſh white; legs cinereous; claws black. Subject to ſeveral varieties. About 20 inches long. Loquacious, and eaſily taught to ſpeak. Inhabits Africa, and is ſometimes called *jaco* from the ſound which it commonly utters.

129 *Garrulus.* *Ceram* or *purple parrot*, *Ceram lory*, &c.—Red; orbits aſh-coloured; cheeks and wings green; hinder parts of the tail-feathers blue. There are three or four varieties. Size of a dove. Inhabits Ceram, and the other Molucca iſlands.

130 *Domicella.* *Purple* or *blue-cap lory.*—Red; cap violet; wings green; ſhoulders and cheeks blue; orbits brown. There is a variety with a blue cap, black orbits, and yellow collar. According to ſome writers, theſe are male and female. They inhabit the Eaſt Indies, and are remarkable for ſpeaking diſtinctly, and quickly learning their leſſon. They are in general ſcarce, and fetch a high price.

131 *Lory.* *Violet cap*, or *black-capped lory.*—Purple; cap violet; wings green; breaſt, cheeks, and tail blue; orbits pale fleſh-colour. Upwards of 10 inches long; inhabits the Philippine iſles, particularly Yolo. It is ſo familiar and playful, that it is much to be regretted that its duration of life proves ſo ſhort in theſe colder regions.

132 *Ochropterus.* *Yellow winged parrot*, or *yellow-headed creatine.*—Green; front and orbits whitiſh; crown, cheeks, chin, throat, and remoter wing-coverts, yellow. Thirteen inches long. Inhabits South America. A friend of the Count de Buffon had one of this ſpecies alive, which ſeemed much attached to its maſter, and yet of a very capricious temper, expecting a return for every demonſtration of civility. In its wantonneſs, it would ſometimes bite a little too hard, and laugh heartily, as if pleaſed with the act; but if chaſtiſed for the offence, it became the more refractory, and could be reclaimed only by gentle treatment. It took great delight in tearing every thing to pieces, was dull and ſilent if confined

Picæ. in its cage; but when at large, chattered almoſt inceſſantly, and repeated every thing that was ſaid to it. It was alſo, contrary to the diſpoſition of many parrots, very fond of children. During the moulting ſeaſon, it appeared dejected and uneaſy for nearly three ſucceſſive months. It was for the moſt part fed on hemp-ſeed, nuts, fruits of all kinds, and bread ſoaked in wine, but preferred meat, if it could get it. It was obſerved, that if it fed on this laſt, it became dull and heavy, and ſoon loſt its feathers. It was alſo remarked, that it kept its food for ſome time in its cheeks, whence it was gradually protruded by a ſort of rumination.

133 *Paſſerinus.* *Paſſerine parrot*, or *blue and green parrakeet.*—Yellowiſh-green, with a blue ſpot on the wings, which are blue below. Bill, cere, orbits, legs and claws, orange; primary wing-coverts blue. Inhabits Braſil and Guiana, and is the ſmalleſt of the genus, being only four inches in length, and of the ſize of the houſe ſparrow.

134 *Cyanolyſeos.* *Blue-collared parrot.*—Yellowiſh-green, collar blue, rump red. Larger than a pigeon. Inhabits Chili, where it is called *theeau*, and where it often does much injury to the corn, flying in great flocks. When the troop ſettles, one of them acts as ſentinel on a tree, and gives the alarm if any perſon approaches, from which circumſtance it is difficult to ſhoot them. This ſpecies breeds in the holes of rocks, laying two white eggs in the moſt inacceſſible and craggy parts. From the tops of the cliff, the inhabitants let themſelves down by ropes to take the eggs and young birds, which are reckoned delicate eating. If robbed of its young, this parrot will lay a ſecond, and even a third, but rarely a fourth time. It is eaſily tamed, and learns to ſpeak well.

135 *Melanocephalus.* *White-breaſted parrot.*—Green, yellow beneath, cap black, breaſt white, orbits fleſh-colour. Length nine inches and a half. Inhabits Mexico, Guiana, and the Caraccas in South America. Frequents woods, and ſeldom approaches inhabited diſtricts. Its call is a ſhrill whiſtle, which it often repeats in its flight, nor does it learn to talk. "Theſe birds, ſays Dr Latham, fly in ſmall numbers together, but are perpetually quarrelling with one another; and, if any one is taken, it refuſes all food, till at laſt it is ſtarved to death. Parrots of the moſt ſtubborn nature are often ſubdued by means of the ſmoke of tobacco; but this bird is only put into bad humour by the attempt. Whoever, therefore, would have theſe parrots, muſt train them up young; and this would ſcarce be worth while were it not for the ſake of variety." Buffon has obſerved that it is thicker and ſhorter-necked than moſt parrots, that its feathers are more ſtiffly ſet on, and that it is of a more dull and ſluggiſh diſpoſition.

136 *Senegalus.* *Senegal parrot.*—Green, yellow beneath, head cinereous, orbits black and naked. Bill cinereous, cere blackiſh, irides yellow, legs reddiſh-aſh. Size of a black-bird, length eight inches and a quarter. Plentiful in Senegal, where it flies in companies of five or ſix, and perches on the tops of the trees which are ſcattered in the ſandy plains. Its cry is ſharp and diſſonant.

137 *Pullarius.* *Ethiopian parrot*, or *red-headed Guinea parrakeet.*—Green, front red, tail tawny, with a black band, orbits cinereous. Size of a lark; length five inches and a half. Very common in Guinea, and alſo occurs in Ethiopia, the Eaſt Indies, and the iſland of Java.

Sapphire parrot, or *ſapphire-crowned parrakeet.*— Picæ. Green; rump and breaſt ſcarlet, crown (of the male) blue. It ſometimes occurs with the head yellowiſh-blue, a tranſverſe orange bar behind, and the front and under part of the throat and tail-coverts red. Five inches long. Inhabits the Philippine iſlands. Sleeps ſuſpended by one foot, and is very fond of the freſh juice of the cocoa-nut tree. "If this is put in a cage, ſays Oſbeck, it whiſtles very ſeldom, and commonly grows quite ſullen; it hangs itſelf with its feet ſo, that the back is turned towards the earth, and ſeldom changes this ſituation: it is fed with boiled rice; in which manner in the year 1752, one was brought to Gottenburg.——We obſerved that their neſts were remarkable for their exceeding fine texture; but we did not ſee the birds. If they had a different conſtruction, the monkeys would be very miſchievous to them; but now, before they can get to the opening, the loweſt part, as the weakeſt, breaks in pieces, and the viſitor falls to the ground without any danger to the birds." 138 *Galgulus.*

Gen. 6. RAMPHASTOS, *Toucan.* 139 RAMPHASTOS.

Bill large, hollow, convex, and ſerrated at the margins; both mandibles incurvated at the tips; noſtrils behind the baſe of the bill, long and narrow; tongue feathered at the edges; feet moſtly ſcanſorial. 140 Characters.

The birds of this genus ſeem to be limited to the tropical regions of South America, and are very impatient of cold. They feed on fruit, eſpecially that of the palm trees. They are generally met with in ſmall flocks of eight or ten, moving from place to place in queſt of food, and advancing northward or ſouthward as the fruits ripen, though they are not properly migratory. They make their neſts in the hollows of trees abandoned by the woodpeckers, and not formed by themſelves, the ſtructure of their bill not allowing of the efforts neceſſary to make, or even enlarge a hole in the moſt tender wood, as it yields to the leaſt preſſure of the finger. They lay two eggs, and probably breed more than once in the year, as they are pretty numerous. If brought up young they are eaſily tamed, and become very familiar.

141 *Viridis.* *Green toucan.*—Green, belly yellow, rump red. Upper mandible yellow, with red ſides and a black line in the middle, the lower black; the baſe and ſpace round the noſtrils red, the teeth in both white, irides and orbits yellow, legs lead colour, claws black, tail wedged and inclining to aſh beneath; head, chin, and throat in the male, black, in the female, bay, terminated by a black, narrow, tranſverſe band. Fourteen inches long. Inhabits Cayenne. Its extraordinary large bill gives it a very ſingular appearance.

142 *Pavoninus.* *Pavonine toucan.*—Green, feathers ſprinkled with red ſpots. Bill variegated with yellow and black, legs and claws black. Seventeen inches long. Inhabits the ſea-coaſts of New Spain, and is ſaid to feed on fiſh. This laſt circumſtance, however, may admit of doubt. Moſt of the ſpecies will eat fiſh, and even fleſh, in a ſtate of confinement; but their frequent proximity to the water in their natural ſtate, is probably occaſioned by the ſituation of their favourite fruit.

143 *Piſcivorus.* *Braſil toucan*, or *Braſilian pie.*—Blackiſh, abdominal band and vent red, rump white. Twenty-one inches long.

Picæ.

long. Inhabits South America. The propriety of its Linnæan deſignation is ſomewhat doubtful.

144 *Tucanus.* *Yellow-breaſted toucan.*—Blackiſh; abdominal band, vent, and rump yellow. Nineteen inches long. Inhabits South America.

145 *Albus.* *White toucan.*—Entirely white. No other particulars are known of this ſpecies.

146 MOMOTUS.

Gen. 7. MOMOTUS, *Motmot.*

147 Characters. Bill ſtrong, ſlightly curved, ſerrated at the edges; noſtrils feathered, tongue feathered, tail wedged, feet greſſorial.

148 *Braſilienſis.* Plate CCCXCV. Fig. 4. *Braſilian motmot*, or *Braſilian ſaw-billed roller.*—Green, front bluiſh-green, hind part of the head violet, crown black. Variegated with green, tawny, blue and cinereous. Body olive-green above, ruſty beneath; head large, bill black, legs black, claws hooked. About a foot and a half in length, and nearly equal to a magpie in ſize. Inhabits Braſil, Cayenne, Mexico, and other parts of South America. It is a ſolitary bird, frequenting thick foreſts; chiefly ſeen on the ground, or on ſome low branch of a tree, taking ſhort flights when diſturbed, and pronouncing the word *hontou*. It makes a neſt of dry graſs and ſtalks on the ground, frequently in ſome hole deſerted by an armadillo or other quadruped, and laying for the moſt part two eggs. It feeds on inſects and raw fleſh, the fragments of which it macerates in water. When taken, it ſtrikes violently with its bill. Its voice is extremely harſh, weak, and tremulous.

149 SCYTHROPS

Gen. 8. SCYTHROPS, *Channel-bill.*

150 Characters. Bill large, convex, cultrated, furrowed or channelled on the ſides, with the tip bent; noſtrils round, naked, placed at the baſe of the bill; tongue cartilaginous and bifid at the end; toes placed two before and two behind; tail conſiſting of ten feathers.

151 *Pſittaceus.* *New Holland channel-bill*, *pſittaceous* or *anomalous horn-bill.*—Bill pale brown, tipt with yelloviſh, convex, keeled; noſtrils ſurrounded with a red wrinkled ſkin; orbits naked; head, neck, and under parts of the body pale bluiſh-gray; back, wings, and tail cinereous, the feathers moſtly with duſky blackiſh tips; tail long, wedged, its feathers barred with black near the end, and tipt with white; legs ſhort, ſcaly, and with the hooked claws black. Size nearly that of a crow, and the total length 27 inches. Inhabits New Holland, though not plentifully, and is ſeldom ſeen unleſs in the morning and evening, ſometimes in ſmall groups of eight or ten, but frequently in pairs, appearing about Port Jackſon in October, and departing in January, but to what country is not known. Both on the wing, and when perched, they make a ſtrange, loud, ſcreaming noiſe, not unlike that of the common cock and hen when they perceive a hawk or other bird of prey hovering over them. They are ſuppoſed to feed principally on the ſeeds of the red gum and peppermint trees, which they ſwallow whole. The tail is ſometimes diſplayed like a fan, which gives the bird a majeſtic appearance.

Picæ.

152 BUCEROS.

Gen. 9. BUCEROS, *Horn-bill.*

153 Characters. Bill convex, curved, ſharp-edged, large, ſerrated at the margins, with a horny protuberance on the upper mandible near the baſe; noſtrils behind the baſe of the bill; tongue ſhort, ſharp-pointed; feet greſſorial.

The birds of this genus are all inhabitants of the warmer regions of Aſia and Africa, and ſeem to correſpond to the toucans of the New World. According to Latham, the circumſtance of their feeding on fiſh requires confirmation.

154 *Bicornis.* *Philippine horn-bill.*—Front bony, flat, and two-horned at the fore part. Varies with a vermilion bill, black belly, and the back and rump brown aſh. Body black above, white beneath; quill-feathers with a white ſpot; tail longiſh and black; legs greeniſh. Size of a common fowl; inhabits the Philippine iſlands, and has a cry like the grunting of a hog. It lives in the woods, and feeds on fruits, ſuch as the Indian fig, piſtachio, &c. which it ſwallows entire; and after digeſting the pulp, brings up the ſtones whole, and ſtill fit for vegetation. The Gentoos rank it among their gods.

155 *Abyſſinicus.* *Abyſſinian horn-bill.*—Black; bony protuberance ſemi-circular on the fore part; orbits, chin, and part of the throat naked, and irides brown. Greater quill feathers white. Total length, three feet ten inches; extent of wing, ſix feet. On the neck are ſeveral protuberances, as in the turkey cock, of a light blue colour, changing to red on various occaſions. Occurs in Abyſſinia, generally among the fields of *taff*, feeding on green beetles, which frequent that plant. It has a putrid ſmell, which has occaſioned a ſuppoſition of its feeding on carrion. It has been ſeen with eighteen young ones, and uſually, runs on the ground; but when raiſed, flies both ſtrong and far. It builds in large thick trees, and when it can, near churches; has a covered neſt, like that of a magpie, but four times as large as an eagle's, placed firm on the trunk, at no great height from the ground, and the entry always on the eaſt ſide.

156 *Hydrocorax.* *Indian horn-bill.*—Protuberance flattened forwards, belly tawny, neck with a white collar. Two feet four inches long, rather bigger than a cock. Inhabits the Moluccas, and feeds chiefly on nutmegs, from which circumſtance its fleſh is very delicate, and has a fine aromatic flavour. In its native places, it is frequently tamed for the purpoſes of deſtroying rats and mice.

157 *Rhinoceros.* *Rhinoceros horn-hill*, *rhinoceros-bird*, or *horned Indian raven.*—The horny proceſs on the upper mandible recurved. Inhabits India. Three feet long, and nearly as big as a turkey. Feeds on fleſh and carrion, and follows the hunters for the purpoſe of feeding on the entrails of the beaſts which they kill. It is alſo ſaid to feed on rats and mice, and after preſſing them flat with its bill, to toſs them up in the air, and ſwallow them whole, immediately on their deſcent.

158 *Panayenſis.* Plate CCCXCV. Fig. 2. *Panayan hornbill.*—Greeniſh black; under part of the body duſky red; the prominence of the upper mandible acute above and plane at the ſides; bill very long, arched, duſky, having the ſides marked tranſverſely with orange-coloured furrows. Size of the raven. Native of the iſle of Panay.

Gen.

Picæ.

159 Buphaga. 160 Characters.

Gen. 10. Buphaga, *Beef-eater*.

Bill ſtraight, ſquariſh; mandibles gibbous, entire, more gibbous at the margins; feet greſſorial.

161 *Africana.*

African beef-eater.—Upper parts of the body gray-brown, under parts and rump yelloviſh; bill hardly an inch long, ſometimes yelloviſh, tipt with red, ſometimes black; tail wedged; legs and claws black. Eight inches and a half long. Inhabits Senegal, and other diſtricts of Africa. Reſembles the ſtarling, in its manners, appearing in ſmall troops of a dozen or more. Alights on the backs of oxen, antelopes, and other quadupeds, and by preſſing the elevated part of the animal's hide, which contains the larva of the œſtrus, forces it out, and regales on it. Is alſo ſaid to feed on various kinds of inſects. It has a ſharp kind of cry, in no reſpect approaching to a ſong.

162 Croto-phaga. 163 Characters.

Gen. 11. Crotophaga, *Ani*.

Bill compreſſed, ſemi-oval, arched, carinated on the back; upper mandible angular at each edge; noſtrils pervious, or going from one ſide of the bill to the other.

164 *Ani.*

Leſſer ani.—Blackiſh-violet; feet ſcanſorial. Body black; tail long, and wedged; upper mandible incurved at the tip; noſtrils oval; tongue fleſhy, and entire; legs black. Length thirteen inches and a half; ſize of a blackbird; and ſometimes known by the names of the *razor-billed blackbird*, or *great blackbird*. Inhabits South America and ſeveral of the Weſt India iſlands. This ſpecies is gregarious to ſuch a degree, that many females lay their eggs in the ſame neſt, to make which they all unite in concert, and after depoſiting their eggs, ſit on them cloſe to each other, in order to hatch them, each ſtriving to do the moſt for the general good. When the young are hatched, the parents exert themſelves to feed the whole flock. It is ſtill more remarkable, that as ſoon as the female has laid her eggs, ſhe covers them with leaves, and repeats this operation as often as ſhe is obliged to leave the neſt for food. It generally breeds twice a year; and the eggs are about the ſize of thoſe of a pigeon, of a ſea-green colour, and ſpotted at the ends. The leſſer ani feeds on worms, inſects, fruits, and grain, according to the ſeaſon. The other ſpecies reſemble this in appearance and manners, but vary ſomewhat in ſize and colouring.

165 Musopha-ga. 166 Characters.

Gen. 12. Musophaga, *Plantain-eater*.

Bill ſtrong, triangular, the upper mandible at the baſe elevated above the crown, both manibles dentated on edges; noſtrils in the middle of the bill; tongue entire and ſtout; toes placed three before and one behind.

167 *Violacea.*

Violet plantain-eater.—Bill one inch and a half; the upper mandible nearly triangular, loſing its attachment at the back part, and hanging over the crown; colour of the bill yellow, and reddiſh towards the end; irides brown; top of the head purple; neck, breaſt, body, and wings violet; legs duſky-black, and very ſtrong. This beautiful and rare bird is found on plains near the borders of rivers, in the province of Acra, in Guinea, and is ſaid to live principally on the fruit of the plantain. Its total length is nineteen inches, of which the tail is ſix inches and one third. It is deſcribed and figured in Latham's ſecond Supplement.

Picæ.

168 Glauco-pis. 169 Characters.

Gen. 13. Glaucopis, *Wattle-bird*.

Bill incurvated, arched, the lower mandible ſhorteſt, with a caruncle below at the baſe; noſtrils depreſſed, and half covered with a membrane nearly cartilaginous, cut at the point, and fringed; feet greſſorial.

170 *Cinerea.*

Cinereous wattle-bird.—Body, bill, and legs black; caruncle firſt blue, then orange; irides blue, and very large; tail long and wedged; legs long; hind claws longer than the reſt. Fifteen inches long; about the ſize of a jay. Inhabits New Zealand, where it is often ſeen walking on the ground, and ſometimes, though more rarely, perching on trees. It feeds on various kinds of berries and inſects, and even, according to ſome, on ſmall birds. Its note approaches to whiſtling, and ſometimes to a ſort of murmuring that is not unpleaſant. Its fleſh is eatable, and by ſome eſteemed ſavoury.

171 Crow. 172 Characters.

Gen. 14. Corvus, *Crow*.

Bill ſtrong, upper mandible a little convex, edges cultrated, and in moſt ſpecies, ſlightly notched near the tip; noſtrils covered with briſtles reflected over them; tongue divided at the end; toes, three forward, one backward, the middle one joined to the outer as far as the firſt joint.

The greater number of this tribe are found in every climate. They are prolific, ſocial, and clamorous; building on trees; laying ſix eggs; and living on grain, ſeeds, inſects, &c. Some of them are apparently hurtful to agriculture; but their uſe in diminiſhing noxious vermin more than counterbalances the waſte which they occaſion.

173 *Corax.*

Raven.—Black; back of a blueiſh black; tail nearly rounded. Two feet two inches long. Varies with a few ſcattered white feathers, or is black and white, or entirely white. A well-known bird, and native of Europe, Aſia, and America. Is hardy, cunning, voracious, and yet patient of hunger. Preys on young ducks and chickens, and even deſtroys young lambs and ſickly ſheep, by firſt picking out their eyes. Smells carrion at a great diſtance; gluts itſelf when an opportunity offers, retires to digeſt, and returns again to feed. Though eaſily domeſticated, and taught to ſpeak, it has a miſchievous trick of purloining any thing glittering, and concealing it. "We have been aſſured, (ſays Mr Montagu), by a gentleman of veracity, that his butler having miſſed a great many ſilver ſpoons and other articles, without being able to detect the thief for ſome time, at laſt obſerved a tame raven with one in his mouth, and watched him to his hiding-place, where he found more than a dozen." The raven uſually makes choice of the forks of the largeſt trees to build in; but many of them likewiſe breed on rocky coaſts, and neſtle in the moſt inacceſſible parts of them. At this time they are very bold, and will not allow even the falcon to approach their neſt with impunity. The male and female pair for life, and drive their young from their haunt, as ſoon as they are able to provide for themſelves. The female lays five or ſix eggs, of a blue-

iſh-green

Picæ. 174 *Corone.*

iſh-green colour, blotched and ſpotted with brown and aſh-colour, and ſomewhat larger than thoſe of a crow.

Carrion crow.—Blueiſh-black; tail rounded; tail feathers acute. Varied with ſpottings of white, or entirely white; bill black, irides duſky, legs black. Diſtinguiſhed from the rook by the bill, which is rather more convex towards the end, and by the reflected briſtles at the baſe being always perfect. Theſe marks, however, are obvious only in adults, and in young birds, the note is the only criterion, which in this is much more hoarſe than that of the rock. This ſpecies weighs about nineteen ounces, and is eighteen inches long. It feeds on fleſh, inſects, and grain, but is particularly fond of carrion. It frequently attacks the eyes of dying animals, deſtroys weakly lambs, and when preſſed with hunger, will even purſue birds on wing. It likewiſe makes havock among young game and poultry. It will frequently hide its food till hunger becomes more urgent. With the leſſer ſpecies of hawks it wages conſtant war; nor will it ſuffer the kite, the buzzard, or the raven, to approach its neſt with impunity. Carrion crows keep in pairs all the year, and ſeldom congregate but to regale on ſome carcaſe, or to rooſt in winter. They build in woods, on the branches of trees, making a neſt of ſticks, plaſtered with earth, and lined with ſome ſoft materials, as wool and hair. The eggs are four or five in number, of a greeniſh colour, ſpotted with duſky and aſh.

175 *Frugilegus.*

Rook.—Black; fore-part of the head cinereous; tail ſomewhat rounded. Very like the preceding; but differs in its manners, being content with feeding on the inſect tribe and grain. It is particularly fond of what is commonly called the *grub-worm*, which is the larva of the chaffer. The rook is gregarious at all ſeaſons, reſorting every ſpring to breed on the ſame trees, where their neſts may be ſeen crowded one over another, on the upper branches. It lays four or five eggs, much like thoſe of the crow. After their young have taken wing, they all forſake their neſt-trees, but return to them again in October, to rooſt. On the approach of winter, they uſually ſeek ſome more ſheltered ſituation at night, but generally aſſemble firſt in the uſual place, and then fly off together. Rookeries are ſometimes the ſcene of violent conteſts between the old and new inhabitants. An unfortunate couple of ſtrangers will ſometimes have their half-built neſts torn in pieces, and be compelled to begin their work anew in ſome more undiſturbed ſituation. "Of this (ſays Mr Bewick) we had a remarkable inſtance in Newcaſtle. In the year 1783, a pair of rooks, after an unſucceſsful attempt to eſtabliſh themſelves in a rookery at no great diſtance from the exchange, were compelled to abandon the attempt. They took refuge on the ſpire of that building, and although conſtantly interrupted by other rooks, built their neſt on the top of the vane, and brought forth their young, undiſturbed by the noiſe of the populace below them; the neſt and its inhabitants turning about with every change of the wind. They returned and built their neſt every year on the ſame place till 1793, ſoon after which the ſpire was taken down." In England, rooks remain during the whole year; but both in France and Sileſia, they migrate. It is a ſingular circumſtance, that the iſland of Jerſey ſhould be entirely without rooks; particularly when we know that they frequently fly over from Britain to France. The young birds, when ſkinned, and made into pyes, are much in requeſt at ſome tables, but are nevertheleſs coarſe eating.

Picæ.

176 *Cornix.*

Hooded crow, or *royſton crow.*—Aſh-coloured; head, throat, wings, and tail black. Length twenty-one inches. Viſits the ſouth of England in October, and retires north to breed, in the beginning of April. In the Hebrides, and ſome parts of Scotland and Ireland, it is reſident throughout the year. In open champaign diſtricts, it feeds on grain, worms, and carrion; but it often reſorts to the neighbourhood of the ſea coaſt, where the various animal matters thrown up by the tide, afford a conſtant ſupply of food. It not only picks out the eyes of lambs and diſeaſed ſheep, but of horſes, when entangled in bogs. The neſt and eggs are ſimilar to thoſe of the common crow. It is not uncommon in many parts of Europe and Siberia.

177 *Monedula.*

Jackdaw.—Browniſh black; hind part of the head hoary; front, wings, and tail, black. Its varieties are, a white collar round the neck; white, with a yelloviſh bill; bright black, and eyes ſurrounded with white dots; black, with bill and legs red; wings white, bill ſomewhat curved; browniſh, with white ſhoulders, &c. Weighs about nine ounces; length near thirteen inches. This very common bird frequents old towers, ruined buildings, and high cliffs, where it builds, as well as in holes of trees. The neſt is made of ſticks, and lined with wool and other ſoft materials; the eggs are five or ſix, and blueiſh, ſpotted with black. The jackdaw is gregarious, frequently flocks with rooks, and like the latter, feeds on grain and inſects, is fond of cherries, and will devour carrion in ſevere weather. It is frequently ſeen to perch on the back of ſheep, not only to rob that animal of its wool as a lining to its neſt, but alſo to pick out the ticks with which it is infeſted. Though eaſily made tame, and taught to ſpeak, it is miſchievous, and full of tricks.

178 *Glandarius.*

Jay.—Wing-coverts blue, with white and black tranſverſe lines; body variegated with purple and gray. This beautiful bird is very common in Great Britain, and in various parts of Europe and Siberia; frequenting wooded tracts, but not in flocks. It weighs ſeven ounces, and meaſures nearly thirteen inches in length. The neſt, which is commonly built in high coppice wood, or hedges, and ſometimes againſt the ſide of a ſcrubby tree, is formed of ſticks, lined with fibrous roots, and contains five or ſix eggs, of a light brown colour, not very unlike thoſe of the partridge, but ſmaller, and obſcurely marked with a darker ſhade of brown. The jay is a great devourer of fruit and grain, particularly acorns, peas, and cherries; will frequently plunder the neſts of ſmaller birds of their eggs and young, and ſometimes pounce on the old birds, on which it preys, as well as on mice. Its common notes are various, but harſh, and manifeſt a ſingular propenſity to imitation and mimicry, counterfeiting the bleating of a lamb, the mewing of a cat, the cry of a kite or buzzard, the hooting of an owl, the neighing of a horſe, &c. It has even been known to imitate very exactly the ſound made by the action of a ſaw.

179 *Criſtatus.*

Blue jay.—Blue; collar black; wing-coverts with tranſverſe black lines; creſt blue; cheeks, chin, and belly, white; breaſt pale red; back pale purple; tail long, wedged, with black and blue lines, and tipt with white; legs black. Eleven inches long; inhabits North

Picæ.

North America; is gregarious; builds in marshy places; has a pleasant note; feeds on worms, serpents, chesnuts, &c. and is particularly destructive to the maize fields.

180 *Caryocatactes.* *Nut-cracker.*—Brown, dotted with white; wings and tail black; tail feathers black at the tip, the middle ones as if worn. Body with triangular white spots; vent white; crown and tail-feathers without spots; feathers of the nostrils sometimes wanting; tongue bicuspidate. Length thirteen inches; size of a magpie. Inhabits Europe and Siberia, but is very rare in England. Its favourite food seems to be the kernels of nuts, which it hacks or splits with its bill.

181 *Pica.* *Magpie.*—Variegated black and white; tail wedged. Subject to considerable varieties. About eighteen inches long, and weighs between eight and nine ounces. Too well known to require particular description, being a common inhabitant of many parts of Europe, Asia, and America. Generally continues in pairs through the year; is mischievous and clamorous, and has a very indiscriminate appetite, rejecting hardly any species of animal food, or fruits, and devouring grain, when nothing else can be got. Is crafty and familiar; may be taught to pronounce words, and even short sentences, and will imitate any particular noise which it hears. Like other birds of its kind, is addicted to pilfering, and will hoard its provisions. The female builds her nest with great art, leaving a hole in the side for her admittance, and covering all the upper part with thorny branches, closely entangled, so as to secure her retreat from the rude attacks of other birds. The inside is furnished with a sort of mattress, composed of wool, and other soft materials. She lays seven or eight eggs, of a pale green colour, spotted with black. During winter nights, magpies assemble in great numbers in some coppice or thicket, to roost, but separate again in the day.

182 *Mexicanus.* *Mexican crow.*—Entirely bluish black. Bill, legs, and claws black. Size of the jackdaw. Inhabits New Spain, frequenting the neighbourhood of towns, and perpetually chattering with a strong and sounding voice.

183 *Pyrrhocorax.* *Alpine crow.*—Blackish; bill pale yellow, legs black. Size of the jackdaw; length fifteen inches. Inhabits the Alps and Pyrenees; has a sharp, disagreeable voice; lives on seeds and grain, and is injurious to corn fields. Its flesh is reckoned good eating.

184 *Graculus.* *Red-legged crow* or *Cornish chough.*—Violet blackish; bill and legs red. Weighs about fourteen ounces; length nearly seventeen inches. Inhabits the Alps, Norway, England, Egypt, and Persia. In this island, it seems to be chiefly confined to Devonshire, Cornwall, and Wales. Mr Pennant observes, that it is also found in some parts of Scotland and the Hebrides. It is seldom seen at any great distance from the sea coast, where it breeds in the rocks and caverns, and not unfrequently in ruined towers. The nest is composed of sticks, and lined with a great quantity of wool and hair. The eggs are generally five, of a dull white, sprinkled with light-brown and ash-coloured spots, mostly at the larger end. The note of the Cornish chough is somewhat like that of the jackdaw, but more shrill. Its food is grain and insects, though, in a state of confinement, it will greedily feed on flesh. It is easily tamed, but crafty, and will hide not only part of its food, but things of value. It is even alledged, that houses have been set on fire by its carrying off lighted sticks in its bill.

Picæ.

Gen. 15. CORACIAS, *Roller*.

185 CORACIAS. 186 Characters. Bill sharp-edged, bent in at the point, base naked of feathers; tongue cartilaginous, and bifid; legs short; feet gressorial; toes three before, and one behind, divided to their origin.

This genus is not confined to any particular region of the globe, as one or other of the different species may be met with in each of the four quarters of the world.

187 *Garrula.* *Common* or *garrulous roller.*—Blue; back red; flag-feathers black.—The only species that has ever been met with in England, and that very rarely. Length twelve inches and a half; size of a jay. Vies with some of the parrots, in its shades of blue and green, mixed with white, heightened by the contrast of graver colours. It is wilder than the jay; frequents the thickest woods, and builds its nest chiefly on birch trees. It is plentiful in Germany, Sicily, and Malta, where they are sold in the markets and poulterers shops. It feeds on frogs, beetles, acorns, grain, and fruit, and in cases of necessity, will even eat carrion. It is remarkable for making a chattering kind of noise. Its flesh tastes like that of a turtle.

188 *Caudata.* Plate CCCXCIV. Fig. 2. *Long-tailed roller.*—Bill blackish, one inch and a half long; hind parts of the head green; upper parts of the back and scapulars fulvous glossed with green; lower part of the back, rump, and wing coverts, fine blue; upper tail coverts blue green; two middle feathers of the tail deep green, rest blue green; outer ones on each side twice the length of the others, and the projecting part deep blue; the shafts of all black; legs gray; claws blackish. Inhabits Angola.

189 *Docilis.* *Docile* or *tame roller.*—White, interspersed with reddish, bay beneath; legs yellow; tail feathers black, tipt with white; bill yellow; claws flesh-colour. Size of a jackdaw. Inhabits Persia; and has obtained its name from imitating the words and actions of those around it.

190 *Strepera.* *Noisy roller.*—Black; patch on the wings; vent, base, and tip of the tail white. This species is very numerous at Norfolk island; and is very clamorous, especially at night. It is a very foolish bird; running after any person, and allowing itself to be knocked down with a stick. It is about nineteen inches long, and rather bigger than a jackdaw.

Gen. 16. ORIOLUS, *Oriole*.

191 ORIOLUS. 192 Characters. Bill conical, convex, very acute and straight; upper manible somewhat longer than the under, and slightly emarginated; tongue bifid and acute; feet gressorial.

The birds of this genus are gregarious, noisy, numerous, voracious, and great devourers of corn. They chiefly inhabit America, and often build pendulous nests. The only European species, which also inhabits Asia and Africa, is the

193 *Galbula.* *Golden oriole*, or *golden thrush.*—Pale yellow; lores and limbs black; outer tail feathers yellow on the hind part; bill and irides yellow; legs plumbeous. Nine inches and a half long. Inhabits Europe, Asia, and Africa; and is incident to several varieties. It is by no means uncommon in France, where it summers and breeds. Its nest is in the shape of a purse, fastened to the extreme divarications

Picæ. divarications of the outmoſt twigs of tall trees, and compoſed of fibres of hemp, or ſtraw, mixed with fine dry ſtalks of graſs, and lined within with moſs and lichens. The female lays four or five eggs of a dirty white, marked with ſmall brown ſpots. She ſits three weeks, and will not unfrequently ſuffer herſelf to be taken with the eggs and neſt, and continue to ſit on them in a cage, till ſhe dies. The golden oriole is partial to grapes, figs, cherries, berries, and inſects. It has a loud cry. Its fleſh is reckoned good eating.

194 *Picus.* *Climbing oriole.*—Tawny; head, neck, and breaſt ſpotted with white; tail rounded; bill yellowiſh gray; legs blackiſh. Seven inches long. Inhabits Guiana, among trees, which it climbs like a pie, and picks out inſects from under the bark.

195 *Icterus.* *Icteric oriole.*—Tawny; head, throat, back, quill and tail feathers, black; wings with a white ſpot; bill moſtly black, with a brown baſe; irides yellowiſh; legs ſometimes black and ſometimes lead coloured, or gray white. Nine inches and a half long. Inhabits the warmer parts of America and the Carribee iſlands. Domeſticated for the purpoſe of killing inſects. In its wild ſtate it is very agile and bold. It builds a large cylindrical neſt, ſuſpended to the end of a twig of a tree, with a view to defend its young from the attacks of ſnakes and other animals. Of theſe neſts ſeveral may ſometimes be ſeen near to one another, and not far from houſes.

196 *Phœnicœus.* *Red-winged oriole.*—Black; wing coverts tawny. Size of a ſtarling; length from eight to nine inches. Occurs in Mexico, the Carolinas, Virginia, and as far as New York. Builds a thick penſile neſt among reeds, or between the forks of trees, three or four feet from the ground, along with other birds, in the ſwamps, which are ſeldom acceſſible by man. In Louiſiana theſe birds appear only in winter, and ſometimes in ſuch immenſe flocks, that three hundred or more are taken at one draught of the net. Theſe nets are ſpread on ſome bare ſmooth path, at the ſide of a wood, with rice ſtrewed to decoy the birds. To ſecure the multitudes that are caught, it is often neceſſary to knock moſt of them on the head upon the ſpot. Their common name in America is *maize-thief*, which they have acquired from the circumſtance of their pecking a hole in the plant when green, and ſo deſtroying it.

197 *Americanus.* *Red-breaſted oriole*, or *mocking-bird of Guiana.*—Black; chin, throat, breaſt, and upper corner of the wings red. Seven inches long, leſs than a blackbird. Inhabits Guiana and Cayenne; ſings pleaſantly, and imitates the notes of many other birds. The neſt, which is built of hay, &c. is long, cylindrical, twelve or fifteen inches in circumference, and hangs from the high branches of the talleſt trees.

198 *Perſicus.* *Black and yellow oriole.*—Black; hind part of the back, ſpot on the wing-coverts and baſe of the tail feathers, yellow. There are, however, ſeveral varieties. Bigger than a blackbird. Inhabits South America; forms a pendent neſt, ſhaped like an alembic: four hundred of which may ſometimes be ſeen together, hanging from the extreme branches of trees. The eggs are dirty white, with ſmall pale brown ſpots.

199 *Baltimorus.* *Baltimore oriole*, or *Baltimore bird.*—Blackiſh; the under parts of the body, and the band on the wings tawny; bill lead colour; greater wing coverts black, tipt with white; firſt quill feathers dirty white, edged with white; two middle tail feathers black, the reſt black on the lower part, and orange above. Theſe birds are found in many parts of America, the northern regions of which they occupy in ſummer, advancing even to Montreal in May, and returning ſouthward in winter, which accounts for their appearance in Maryland and Virginia at that time. They make their neſt of a ſoft downy matter, in the ſhape of a purſe, tying it with threads to the extreme forks of the twigs of the tulip, plane, and hiccory trees. The country people call them *fire-birds*; and indeed when in high plumage, their motions from branch to branch not unaptly reſemble a flaſh of fire.

200 *Textor.* *Weaver oriole.*—Yellow; head brown, with a ſhade of golden; quill and tail feathers blackiſh, edged with orange. Inhabits near the Senegal; ſize of the golden oriole. "In the cage where theſe birds were kept, (ſays Dr Latham), it was obſerved, that they entwined ſome of the ſtalks of the pimpernel, with which they were fed, in the wires; as this ſeemed to ſhew a diſpoſition of making a neſt, ſome ruſh-ſtalks were put into the cage; on which they preſently made a neſt large enough to hide one of them at leaſt; but it was as often deranged as made, the work of one day being ſpoiled the next; ſerving to ſhew that the fabrication of the neſt in a ſtate of nature was the work of both male and female, and in all probability is finiſhed by the laſt. They had a ſharp but lively note.

"A friend of mine deſcribed a bird to me, which he ſaw at the houſe of an acquaintance, which ſeemed to be this very bird. By accident having got a bit of ſewing ſilk, it wove it among the wires of the cage, on which, more being put to it, it interlaced the whole very confuſedly, ſo as to hinder moſt part of that ſide of the cage from being ſeen through. It was found to prefer green and yellow to any other coloured ſilk."

201 *Banana.* *Banana oriole.*—Tawny; head and breaſt cheſnut; back, quill, and tail feathers, black. Seven inches long. Inhabits South America and the Weſt India iſlands. Makes a neſt of a curious conſtruction, compoſed of fibres and leaves, exactly in the ſhape of the fourth part of a globe, ſewed with great art under a leaf of a banana tree, in ſuch a manner that the leaf forms one ſide of the neſt.

202 *Nidipendulus.* *Hang-neſt oriole, American hang-neſt, Spaniſh nightingale, &c.*—Frontlet and wreath black; crown, neck, back, and tail, reddiſh-brown; breaſt and belly tawny yellow. Inhabits the woods in Jamaica; ſings ſweetly; and builds a pendulous neſt of ſtalks or thready moſs, on the extreme branch of a high tree.

Gen. 17. GRACULA, *Grakle.*

203 GRACULA.

204 Characters. Bill convex, ſharp-edged, ſomewhat naked at the baſe; tongue entire, ſomewhat ſharp, fleſhy; feet formed for walking.

All the ſpecies are extra-European; have a thick bill, compreſſed at the ſides, with ſmall noſtrils at the baſe, and ſharp-hooked claws; the middle toe of the fore-feet connected at the baſe to the outer.

205 *Religioſa.* *Minor*, or *religious grakle.*—Violet black; ſpot on the wings white; hind-head with a yellow naked band. Size of a blackbird; length ten inches and a half. Inhabits

Picæ. habits various parts of the Eaſt Indies; is very fond of cherries and grapes; and can be eaſily trained to whiſtle, ſing, or ſpeak.

206 *Barita.* *Boat-tailed grakle.*—Grayiſh; ſhoulders blue; quill feathers green on the outſide. Size of a cuckoo, nearly thirteen inches long. The folding up of the tail feathers, inſtead of forming a plain ſurface at top, ſinks into a hollow, like a deep gutter, which ſingularity is manifeſt only when the bird is flying, or perched, for when on the ground, it always carries its tail expanded. It inhabits Jamaica and North America, keeping company with the maize-thief and red-winged oriole. It feeds on maize, the fruit of the banana, &c. as well as on beetles and other inſects.

207 *Quiſcala.* *Purple grakle.*—Violet black; tail rounded. Upwards of thirteen inches long, though the female meaſures only eleven and a half. Inhabits Mexico, the warm parts of America, and Jamaica; ſings ſweetly; feeds on all kinds of grain, and makes great havock in the maize plantations. It lays five or ſix blueiſh eggs, with black ſtripes and ſpots.

208 PARADISEA.

Gen. 18. PARADISEA, *Bird of Paradiſe.*

209 Characters. Bill covered with a belt of downy feathers at the baſe; feathers of the ſides very long; two of the tail feathers naked. Legs and feet very large and ſtrong; three toes forward, one backward, the middle connected to the outer one as far as the firſt joint.

The birds of this genus, till lately, were very imperfectly known, and had given riſe to various idle tales, ſuch as their never alighting on the ground from their birth to their death,; their living entirely on dew; their being produced without legs, &c. The circumſtance which led to the laſt-mentioned error, was merely accidental; the legs and coarſer parts of the wings having been pulled off in the courſe of preparing the birds for an ornamental article of dreſs. Though the birds of paradiſe occur in Japan, China, Perſia, and various parts of India, they are believed to be properly natives of New Guinea, where they breed. The Dutch get them chiefly from Banda, where the ſtory of their want of legs has been propagated, in order to enhance their value.

210 *Apoda.* *Great bird of Paradiſe.*—Feathers of the hypochondria longer than the body; the two intermediate tail feathers longe and ſetaceous; the ſize of the body ſcarcely exceeds that of a thruſh, though the plumage would indicate a bird as large as a pigeon; the length from the end of the bill to that of the tail is twelve inches and a half; the bill is greeniſh yellow, and an inch and a half long; the eyes are very ſmall; the head, which is alſo ſmall in proportion to the bird, as well as the throat and neck are covered with very ſhort, denſe, ſtiff feathers, of which thoſe on the head and hind part of the neck are of a pale gold colour; the baſe of the bill is ſurrounded with black feathers, appearing like velvet, and changing in different lights to green; the fore part of the neck is golden green; the lower part of the neck behind the back, wings, and tail, are cheſnut; the breaſt is of a deep cheſnut, verging to purple; from under the wings proceeds a great quantity of feathers, with the webs ſo looſe, as to appear like a herring-bone, ſome of them nearly eighteen inches long, ſome cheſnut and purpliſh, others yellowiſh, and a few almoſt white; from the rump ariſe two feathers without webs, except for four inches next the baſe, and the ſame at the tips; the legs are ſtout and of a brown colour. Theſe birds are found in the Molucca iſlands, and thoſe ſurrounding New Guinea, particularly in Aroo, where they arrive with the weſterly or dry monſoon, and whence they return to New Guinea, when the eaſterly or wet monſoon ſets in. They are ſeen going and returning in flights of thirty or forty, conducted by a leader, which flies higher than the reſt. During this flight they cry like ſtarlings. By a ſudden ſhifting of the wind, their long ſcapular feathers are ſometimes ſo diſhevelled as to preclude flying, when they fall to the ground, or are loſt in the water. In the former caſe they cannot riſe again into the air, without gaining an eminence, and are ſecured by the natives, and killed on the ſpot, as they cannot be preſerved alive by art. They are likewiſe caught with bird-lime, or ſhot with blunt arrows, or intoxicated with the berries of *meniſpermum cocculus* put into the water which they are accuſtomed to drink. Their real food is not known with certainty. According to ſome, they feed on the red berries of the *waringa tree* (*ficus benjamina*), according to others, they are particularly fond of nutmegs; ſome aſſert that they live on large butterflies, and others, that they chaſe and devour ſmall birds. It is only for ornament that they are coveted by ſuch of the inhabitants of the eaſt as are able to purchaſe them, the chiefs of the country wearing them conſtantly in their turbans. The grandees of Perſia, Surat, and the Eaſt Indies, uſe them as aigrettes, and even adorn their horſes with them. There is a leſſer variety of this ſpecies, found in the Papua iſlands. Picæ.

211 *Regia.* *King's bird of Paradiſe*, or *king's bird.*—Cheſnut purple, whitiſh beneath; two middle tail-feathers filiform, feathered, and ſemilunar at the tips; breaſt bluiſh; cirri of the tail very long; feathers under the wings longer than the reſt; tail ſhort, truncate; from five to ſeven inches long, and about the ſize of a lark. It is ſaid not to aſſociate with any other of the birds of paradiſe, but ſhifts ſolitary from buſh to buſh in queſt of red berries, and never gets on tall trees. It occurs in the iſlands of the Indian ocean, and returns to New Guinea in the rainy ſeaſon, but is much more ſcarce than the preceding.

212 *Magnifica.* *Magnificent bird of Paradiſe.*—Cheſnut brown above; chin green, with golden lunules; crown with a tuft of yellow feathers; firſt quill-feathers brown, ſecondary deep yellow; middle tail-feathers very long, with a very ſhort fringe; legs and bill yellow, and the latter black at the tip and baſe. A ſingular and beautiful ſpecies, figured in Latham's Synopſis.

213 *Nigra.* *Gorget bird of Paradiſe.*—Black, ſlight green beneath; hind head, nape, crown, and band on the middle of the belly fine green, a ſplendid gold-coloured creſcent under the chin; tail feathers 12, unequal, the outer ones five inches long, and the two in the middle 22. Twenty-eight inches long. Figured in Latham's Synopſis.

214 *Superba.* *Superb bird of Paradiſe.*—Creſted; head, crown, and belly green; chin violet, ſilky; wings black; tail with a ſhade of green; bill black; legs brown, under the wings a tuft of looſe, black, ſilky feathers, as long as the wings when folded. Eight inches and eight lines long. Native of the northern parts of New Guinea.

White.

Picæ.

White bird of Paradiſe.—Entirely white. Inhabits the Papuan iſlands, and is very rare.

215 *Alba.*

Gen. 19. Trogon, *Curucui.*

216 Trogon.

217 Characters. Bill ſhorter than the head, ſharp-edged, hooked; mandibles ſerrated at the edge; feet ſcanſorial; body long; noſtrils covered with briſtles; feet ſhort, woolly; tail very long, conſiſting of 12 feathers.

The birds of this genus are all inhabitants of the tropical regions, and moſtly inhabit South America. They live ſolitary, in the thickeſt receſſes of moiſt woods, ſitting and building on the lower branches of trees. They take but a ſhort flight, and feed on inſects and fruit. As they differ much in appearance, in different ſtages of life, a conſiderable degree of confuſion has prevailed in the illuſtration of the ſpecies. They have the name of *curucui* from their note.

218 *Curucui.* *Red-bellied curucui.*—Of a greeniſh-gold colour, tawny beneath; throat black; lateral tail feathers, with white and black bars, the middle ones tipt with black. Somewhat leſs than a magpie; length 10 inches and a half. Inhabits Mexico, Brazil, and Peru. There are two or three varieties. At pairing time, only two or three are found together; and the male has a kind of melancholy note, by which their haunts are diſcovered. They begin to pair in April, and build in the hole of a rotten tree, laying three or four white eggs, about as big as thoſe of a pigeon, on the bare rotten duſt. During the incubation of the female, the male takes care to provide food for her, and to beguile the time by his ſong. The parents feed the young with ſmall worms, caterpillars, and inſects; and, when their nurſlings are able to ſhift for themſelves, they forſake them, and return to their ſolitary haunts, till nature prompts them to produce their ſecond brood in Auguſt or September. Various attempts have been made, but without effect, to domeſticate this ſpecies, as it obſtinately refuſes food, when in confinement.

219 Bucco.

Gen. 20. Bucco, *Barbet.*

220 Characters. Bill cultrated, compreſſed laterally; apex emarginated on both ſides, and incurved, gape reaching below the eyes; noſtrils covered with recumbent feathers; feet ſcanſorial; bill ſtrong, ſomewhat ſtraight, almoſt covered with briſtles; tail feathers uſually ten.

The birds of this genus are all inhabitants of Africa, and the warmer parts of Aſia and America, and are a dull and ſtupid race.

221 *Tamatia.* *Spotted-bellied barbet.*—Tawny brown, tawny white, ſpotted with black beneath; chin tawny; neck with a tawny lunule varied with black, a black ſpot behind the eyes; head very large; bill black; crown and front tawnyiſh; legs black. This bird occurs both at Cayenne and Brazil. It is clumſy, ſolitary, ſilent, and penſive, affecting only ſuch places as are fartheſt from habitations, generally in the woods, where it chooſes ſome low branch, well covered with twigs and foliage, on which it perches, with its large head reſting between its ſhoulders for a long time together, allowing itſelf to be ſhot at ſeveral times before it makes its eſcape. It feeds on inſects, particularly large beetles.

222 *Elegans.* *Beautiful barbet.*—Green; head and chin red, edged with blue; quill feathers brown, throat and breaſt yellow, the latter ſpotted with red; belly yellow, ſpotted with green; bill, legs, and claws cinereous, the latter tipt with yellow; a blue ſtreak on each ſide of the mouth; tail wedged; quill feathers edged with green. Size of a ſparrow, nearly ſix inches long. Inhabits the country of Maynas, on the borders of the Amazons, and is the moſt beautiful and active of the tribe.

Picæ.

Gen. 21. Cuculus, *Cuckoo.*

223 Cuculus.

224 Characters. Bill ſmooth, weak, a little curved; noſtrils bounded by a ſmall rim; tongue arrowed, ſhort, and pointed; feet ſcanſorial.

Of upwards of 50 ſpecies belonging to this genus, the firſt mentioned only is a native of Great Britain; and very few of the others are natives of Europe.

225 *Canorus.* *Common cuckoo.*—Cinereous, whitiſh beneath, tranſverſely ſtreaked with brown; tail rounded, blackiſh, dotted with white; edges of the eyelids, opening of the mouth and palate ſaffron; when young, the whole body is browniſh, the feathers edged with white; the upper part of the body is ſometimes varied with reddiſh. It likewiſe occurs with wavings of gray; a double row of white dots on the middle tail feathers, and the bill, orbits, and legs of a ſulphur colour. Size of the turtle dove 14 inches long, and weighs about four ounces and a half. The female is rather leſs, and, in general, differs from the other ſex, in the neck and breaſt, being of a tawnyiſh brown, barred with duſky, and the wing-coverts marked with light ferruginous ſpots. Inhabits Europe, Aſia, and Africa.—This well-known bird comes to us early in the ſpring, and almoſt invariably leaves us by the firſt of July, though the females may ſometimes remain a little later, till they have depoſited all their eggs. Such as are ſeen about the latter end of September or beginning of October, are the young of that year, or ſtragglers which have been wounded. The ſingular note of the male has given riſe to the name of this bird, in moſt languages; the female is either ſilent, or makes only a chattering noiſe. Cuckoos build no neſt, and what is more extraordinary, the female depoſits her ſolitary egg in the neſt of another bird, by which it is hatched. The neſt which ſhe ſelects for this purpoſe is uſually that of the hedge ſparrow, though ſometimes alſo that of the water-wagtail, tit-lark, yellow hammer, green linnet, &c. Dr Jenner, in his valuable communication to the Royal Society, publiſhed in the ſecond part of the 78th volume of their Tranſactions, obſerves, that while the hedge ſparrow is laying her eggs, which generally takes up four or five days, the cuckoo contrives to depoſit her egg among the reſt, leaving the future care of it entirely to the hedge ſparrow. This intruſion often occaſions ſome diſcompoſure, for the old hedge ſparrow at intervals, while ſhe is ſitting, not only throws out ſome of her own eggs, but ſometimes injures them in ſuch a way, that they become addle; ſo that it frequently happens that not more than two or three of the parent bird's eggs are hatched with that of the cuckoo: and, what is very remarkable, it has never been obſerved, that the hedge ſparrow has either thrown out or injured the egg of the cuckoo. When the hedge ſparrow has ſat her uſual time, and has diſengaged the young cuckoo and ſome of her own offſpring from the ſhell, her own young ones, and any of her eggs that remain unhatched, are ſoon turned out; the

Picæ.

young cuckoo then remains in full poſſeſſion of the neſt, and is the ſole object of the future care of its foſter-parent. "The mode of accompliſhing this, (ſays the ingenious and intereſting inquirer, in reporting his obſervations on a particular caſe), was curious; the little animal, with the aſſiſtance of its rump and wings, contrived to get the bird upon its back, and making a lodgement for its burden, by elevating its elbows, clambered backwards with it up the ſide of the neſt till it reached the top, where, reſting for a moment, it threw off its load with a jerk, and quite diſengaged it from the neſt. After remaining a ſhort time in this ſituation, and feeling about with the extremities of its wings, as if to be convinced that the buſineſs was properly executed, it dropped into the neſt again." Dr Jenner made ſeveral experiments in different neſts, by repeatedly putting in an egg to the young cuckoo, which he always found to be diſpoſed of in the ſame manner. But we are reluctantly compelled to withhold various other intereſting details relative to this ſubject, and to refer our readers to the original communication. The young birds are obſerved to be helpleſs and fooliſh for a great length of time, but are capable of being tamed, and, when in confinement, will eat bread and milk, fruits, inſects, eggs, and fleſh, either cooked or raw; but, in a ſtate of nature, they live chiefly on caterpillars and inſects.

226 *Vetula.* *Long-billed rain cuckoo.*—Tail wedged; body brownish, teſtaceous beneath; eyelids red. Rather bigger than a blackbird. Inhabits woods and ſhrubberies in Jamaica, is eaſily tamed, flies ſhort, ſings before rain, and feeds on grains, inſects, worms, ſmall ſerpents, frogs, lizards, and ſmall birds.

227 *Pluvialis.* *Rain cuckoo.*—Olive aſh, rufous beneath; chin and throat white; outer tail feathers edged with white. From 16 to 17 inches long, like the preceding. Inhabits Jamaica, and ſings before rain. Both ſpecies are familiarly known by the names of *old man*, and *rain bird*.

228 *Ridibundus.* *Laughing cuckoo.*—Tawny; chin, throat, and breaſt cinereous; belly, thighs, and lower tail coverts black; bill bluiſh black; irides white; tail half as long as the body. Sixteen inches long. Inhabits New Spain; has a voice like a man laughing, on which account it is dreaded by the Indians as ominous.

229 *Melanoleucos.* *Coromandel creſted cuckoo.*—Upper parts of the body black; under part white; a white ſpot on the edge of the wing; tail wedge-ſhaped and tipped with white; head creſted; bill black; legs brown. Length eleven inches. Inhabits the coaſt of Coromandel. Plate CCCXCIV. Fig. 4.

230 *Piſanus.* *Piſan cuckoo.*—Tail wedged; body above varied with white and black, white beneath; head black and creſted; chin and breaſt rufous. Rather larger than the common ſpecies, and has its name from having been once caught in Piſa.

231 *Indicator.* *Bee cuckoo, honey-guide, moroc*, &c.—Ruſty gray, white beneath; eyelids naked, black; ſhoulders with a yellow ſpot; tail wedged, ruſty; bill brown at the baſe, and ſurrounded with briſtles, yellow at the tip; feathers of the thighs white, with a longitudinal black ſtreak; quill feathers brown above, gray brown beneath; firſt tail feathers very narrow, ruſty; the next footy, the inner edge whitiſh; the reſt brown at the tip on the inner web. Somewhat larger than the common ſparrow. Native of the interior parts of Africa. This bird is very fond of honey and bee maggots; but being unable, by its own efforts, to procure them from the hollow of trees, it points out to man and to the animal called *ratel*, the neſts of wild bees. The morning and the evening are its principal meal times; at leaſt it is then that it ſhews the greateſt inclination to come forth, and with a grating cry of *cherr, cherr, cherr*, to excite the attention of the ratel, as well as of the Hottentots and coloniſts. Somebody then generally repairs to the place whence the ſound proceeds, when the bird, continually repeating its cry, flies on ſlowly and by degrees to the quarter where the bees have taken up their abode. The perſons thus invited, follow accordingly, taking great care, at the ſame time, not to frighten their guide by any unuſual noiſe; but rather to anſwer it now and then with a very ſoft and gentle whiſtle, by way of letting the bird know, that its call is attended to. When the bee's neſt is at ſome diſtance, the bird often makes long ſtages, or flights, waiting for its ſporting companions between each flight, and calling to them again to come on; but it flies to ſhorter diſtances, and repeats its cry more frequently, and with greater earneſtneſs, in proportion as they approach nearer the neſt. When the bird has ſometimes, in conſequence of its impatience, got too far a-head of its companions, but particularly when, on account of the unevenneſs of the ground, they have not been able to keep pace with it, it will fly back to meet them, and, with redoubled cries, denoting ſtill greater impatience, upbraid them, as it were, for being ſo tardy. When it arrives at the neſt, whether the latter is built in the cleft of a rock, or in a hollow tree, or in ſome cavity of the earth, it hovers over the ſpot for a few ſeconds, then ſits in ſilence, and for the moſt part concealed, in ſome neighbouring tree or buſh, in expectation of the reſult, and with a view of receiving its ſhare of the booty. Nor is it diſappointed; the hunters, by way of acknowledgement, leaving it a conſiderable portion of that part of the comb in which the bees are hatching. Mr Barrow corroborates theſe details, and adds, that the moroc intimates to the inhabitants with equal certainty the dens of lions, tigers, hyænas, and other beaſts of prey, and noxious animals. Le Vaillant mentions that the Hottentots are very partial to this bird on account of its ſervices, and that once when he was on the point of ſhooting one, they intreated him to ſpare its life. Mr Bruce, by confounding this ſpecies with another peculiar to Abyſſinia, has indulged in ſome very miſplaced ſtrictures on the accounts of Sparrman and Lobo.

Picæ.

Gen. 22. YUNX.

232 YUNX.

233 Characters. Bill ſmoothiſh, cylindrical, pointed, a little curved, weak; noſtrils concave, naked; tongue very long, ſmooth, worm-ſhaped, armed at the point; tail feathers 10, flexible; feet ſcanſorial.

This genus conſiſts of only one ſpecies, and has, by moſt authors, been held diſtinct; for, though allied to ſome other genera, it perfectly coincides with none. The tongue and diſpoſition of the toes correſpond to thoſe of the woodpecker; but the weakneſs of the bill diſtinguiſhes it from that family. It ſeems alſo to be nearly related to the cuckoo, did not its length of tongue form a marked diſtinction.

234 *Torquilla.* *Wryneck.*—Gray, varied with brown, and blackiſh; belly reddiſh, with blackiſh ſpots; tail feathers waved with

with black ſpots, ſtreaks, and bars. Deſcription, however, is very inadequate to convey an accurate idea of the elegant markings of this little bird. Its name ſeems to have been given it from the ſingular manner of turning its head over its ſhoulder and perpetually looking about, when the black liſt on the back of the neck gives it a twiſted appearance. The weight of this beautiful bird is about ten drams, and its length ſeven inches. It inhabits Europe, Aſia, and Africa, appearing in Britain about the ſame time with the cuckoo, and chiefly frequenting woods, or thickly incloſed countries, where trees or orchards abound. Its food principally conſiſts of ants and other inſects, of which it finds great abundance lodged in the bark and crevices of trees, and which it ſecures by a horny ſubſtance at the end of its long tongue. It likewiſe frequents ant hills, into which it darts its tongue, and draws out its prey. It is never ſeen with any other ſociety than that of its female, and, as ſoon as the domeſtic union is diſſolved, which is in September, they retire and migrate by themſelves. It makes an artleſs neſt of dry graſs, on duſty rotten wood, in holes of trees, and lays nine or ten eggs, which are white and tranſparent. If ſurpriſed in its neſt, it ſtretches itſelf at full length; and erecting the feathers on the crown of its head, ſuddenly riſes, making, at the ſame time, a ſhort hiſſing noiſe, like that of a turkey cock. In the beginning of ſpring, it very frequently repeats a noiſe like that of the ſmaller ſpecies of hawks.

235 Picus.

Gen. 23. Picus, *Woodpecker*.

236 Characters.

Bill angular, ſtraight, wedged at the tip; noſtrils covered with recumbent ſetaceous feathers; tongue round, worm-ſhaped, very long, bony, miſſile, daggered, beſet at the point with reflexed briſtles; tail feathers ten, hard, rigid, pointed; feet ſcanſorial.

The birds of this genus climb trees, particularly thoſe that are decaying or dead, in ſearch of inſects and their larvæ. The bone of their tongue terminates in two long ſlender cartilages, which proceed from below upwards, and from behind forwards, over the whole ſkull, under the ſkin, and are attached to the forehead near the baſe of the bill. By means of thoſe elaſtic cartilages, the woodpeckers thruſt out their filiform tongue to catch inſects. The feet are formed for climbing, their tail is fitted for reſiſtance and ſupport, and their ſharp-pointed and barbed tongue enables them to extract inſects from their lurking places in trees. They are therefore unjuſtly perſecuted and driven from plantations. They make their neſts in hollows of trees. They have a membranous ſtomach and want the cæcum.

237 *Martius.* *Great black woodpecker.*—Black, cap vermilion. In the female the hind head only is red; length 17 inches and a half. Size of a jackdaw; bill nearly two inches and a half long, of a dark aſh colour, and whitiſh on the ſides; irides pale yellow. Has all the habits of the green woodpecker, and is a great deſtroyer of bees. Makes its neſt deep in ſome tree, which it has excavated for the purpoſe, and lays two or three white eggs; a circumſtance which ſeems peculiar to moſt of the genus. Occurs in Europe, Siberia, and Chili; but rarely viſits England.

238 *Erythrocephalus.* *Red-headed woodpecker.*—Head wholly red; wings and tail black; belly white. Eight inches and three quarters long, and weighs two or three ounces. This ſpecies inhabits Virginia, Carolina, Canada, &c.; but, on the approach of winter, migrates more or leſs to the ſouthward, according to the ſeverity of the ſeaſon, from which circumſtance the North Americans foretel the rigour or clemency of the enſuing winter. The red-headed woodpeckers are very deſtructive to maize fields and orchards, and are fond of acorns. During the winter they are very tame, and ſometimes come into houſes, as the redbreaſt with us. They are found chiefly in old trees; and the noiſe that they make with their bills may ſometimes be heard at a mile's diſtance.

239 *Auratus.* *Gold-winged woodpecker.*—Striated tranſverſely with black and gray; chin and breaſt black; nape red; rump white. Chin of the female cinereous; length 11 inches; weight five ounces. Inhabits North America; is almoſt continually on the ground; feeds on worms and inſects; and, in default of theſe, on berries and graſs. When fat, is eſteemed good eating.

240 *Viridis.* *Green woodpecker.*—Green; crown of the head crimſon; bill duſky, two inches long; inner circle of the irides reddiſh; outer white; temples blackiſh; quill feathers duſky, with whitiſh ſpots; tail blackiſh, obſcurely barred with green, and tipt with white; legs greeniſh aſh. Weighs about ſix ounces, and is thirteen inches long. Inhabits Europe, and is by no means uncommon in the wooded parts of England. It feeds on inſects, and is particularly fond of bees. It is frequently ſeen climbing up a tree, or on the ground, in the neighbourhood of an ant hill. The hole which they make is as perfect a circle as if it had been deſcribed by a pair of compaſſes. It is curious to obſerve them try every part of a dead limb of a tree, till they have diſcovered the moſt ſonorous, and then the ſtrokes are reiterated with ſuch velocity, that the head is ſcarcely perceived to move. The ſofter woods, ſuch as the elm, aſh, and aſp, are, for the moſt part, attacked, for the purpoſe of nidification, and are perforated only where they exhibit ſymptoms of decay. The excavations are often deep, to give ſecurity to the eggs, which are generally four or five, and placed on the rotten wood, without any neſt.

241 *Pubeſcens.* *Downy woodpecker.*—Back longitudinally downy; outer tail feathers white, with four black ſpots. Weighs an ounce and a half, and meaſures only five inches and a half in length. Inhabits Carolina, Virginia, New Jerſey, &c. and is a daring bird, and dangerous to orchards. As ſoon as it has pecked one hole in a tree, it makes another cloſe to the firſt, in a horizontal direction, proceeding till it has made a circle of holes quite round the trunk, ſo that the tree frequently dries up and decays.

242 *Villoſus.* *Hairy woodpecker.*—Back ſomewhat downy, in a longitudinal direction; outer tail feathers entirely white. From nine to twelve inches long. Like the former, is the peſt of orchards. Inhabits North America, from Hudſon's Bay to Carolina; and likewiſe occurs in the north of England.

243 *Major.* *Greater ſpotted woodpecker.*—Variegated with black and white; hind head and vent red. Female, without red on the hind head. The weight of this ſpecies is about two ounces and three quarters, and the length nine inches. The bill is duſky, and an inch and quarter long; the irides are reddiſh brown. Inhabits Europe, North America, and Siberia. Is leſs frequent in England than the green ſpecies, to which it is nearly allied.

Picæ. allied in manners and habits, except that it rarely descends to the ground in search of food. Lays four or five white and glossy eggs on the decayed wood, without any formal preparation of a nest.

244 *Medius.* *Middle-spotted woodpecker.*—Variegated with white and black; vent and cap red; cheeks white; three lateral tail feathers, tipt with white. Supposed by some to be only the young of the preceding species.

245 *Minor.* *Lesser-spotted woodpecker.*—Variegated with white and black; crown red; vent testaceous or brick-coloured. There are two or three varieties. The weight of this small species is not quite five drams; and the length is about five inches and a half. Inhabits Europe and Asia, and has the habits of the *major*; but is of more rare occurrence.

246 *Minutus.* *Minute woodpecker.*—Chesnut gray; whitish, waved with brown beneath; crown red; hind head black, spotted with white. Only three inches and a half long, the least of its tribe. Inhabits Cayenne.

247 *Cardinalis.* *Cardinal woodpecker.*—Black; under part of the body white, spotted with black; crown and back part of the head red; wings spotted with white; legs and bill blackish. Inhabits the isle of Luzonia. Plate CCCXCIV. Fig. 3.

248 SITTA.

Gen. 24. SITTA, *Nuthatch.*

249 Characters. Bill subulated, roundish, unbent, projecting straight forwards, and entire; the upper mandible somewhat longer than the under, compressed at the point; tongue notched, short, and horny at the apex; nostrils small, covered with bristles; feet grefforial.

The general manners of the whole of this genus are supposed to correspond with those of the ensuing species, which is the only one that is found in Britain.

250 *Europæa.* *European nuthatch.*—Cinereous, reddish beneath; tail feathers black, the four lateral ones beneath tipt with white. A black line through the eyes and ears; rump white, varied with rusty; the first tail feather with a white bar, two with a white spot, three or four tipt with white, five colour of the back. Inhabits Europe and Asia. Remains in England the whole year; but is local, and chiefly affects wooded and inclosed situations, selecting the deserted habitation of a woodpecker for its nest. The hole is first contracted by a plaster of clay, leaving only sufficient room for the bird to pass in and out. The nest is made of dead leaves, especially of those of the oak, which are heaped together without much order. The number of eggs is six or seven, and they are scarcely to be distinguished from those of the great titmouse, in size and markings. If the plaster at the entrance be destroyed when there are eggs in the nest, it is speedily replaced, to prevent the intrusion of the woodpecker and other birds of superior size which build in the same situation. No persecution will force this little bird from its habitation when sitting. It defends its nest to the last extremity, strikes the invader with its bill and wings, makes a hissing noise; and, after every effort of defence has been practised in vain, will suffer itself to be taken in the hand rather than desert its charge. The nuthatch is more expert in climbing than the woodpecker; for it runs in all directions up and down a tree. When employed in breaking a nut, its favourite position is with the head downwards. In the autumn it is no uncommon thing to find, in the crevices of the bark of an old tree, a great many broken nut shells, the work of this bird, which repeatedly returns to the same spot for this purpose. When it has fixed the nut firm in a chink, it turns on all sides, to strike it with most advantage. This, with the common hazel-nut, is a work of some labour; but it breaks a filbert with ease. In default of nuts, this bird searches for insects and their larvæ among the moss on trees and old thatched buildings. It is commonly met with among orchards, and is sometimes seen, in the cyder season, picking the seeds from the refuse of the pressed apples. In spring it has a remarkably loud, shrill whistle, which ceases after incubation, and gives place, in autumn, to a double reiterated cry. It deserves to be remarked, that the singular jarring noise produced by some species of woodpeckers, by repeated strokes of the bill against the decayed limb of a tree, has been erroneously ascribed to the nuthatch. Picæ.

251 *Surinamensis.* *Surinam nuthatch.*—Reddish chesnut, dirty white beneath; middle of the back white; wings and tail black; wing and tail coverts tipt, and secondary quill feathers edged with white. Only three inches and a half long. Inhabits Surinam.

252 TODUS.

Gen. 25. TODUS, *Tody.*

253 Characters. Bill subulate, somewhat depressed, obtuse, straight, covered at the base with bristles; nostrils small, oval; feet grefforial.

These mostly inhabit the warmer regions of America, and are nearly related to the family of fly-catchers; but are distinguished from them by having the middle and outer toe much connected, which, in the fly-catchers, are divided to the base.

254 *Viridis.* *Green tody.*—Green, yellowish rosy beneath; breast red; upper mandible brown, lower orange; irides chesnut; cheeks with a red spot; legs and claws gray. The male, according to Buffon, has the upper part of the body of a pale blue, the belly white, the breast and sides rose colour. This pretty species, which is about the size of a wren, and four inches long, occurs not only in the warmer parts of the American continent, but also in St Domingo, Jamaica, and other islands of the West Indies. The females are not uncommon in Jamaica. It is supposed to feed on soft insects, and is of a shy solitary disposition, frequenting the lonely parts of moist tracts of country, where it is observed to sit all of a heap, its head drawn in between its shoulders, and so stupid as almost to allow itself to be taken by the hand.

255 *Leucocephalus.* *White-headed tody.*—Black; subcrested head and chin white; bill blackish; the lower mandible white, tipt with blackish; wings short; tail even. Less than the redstart. Inhabits America. Figured in Latham's Synopsis.

256 *Obscurus.* *Obscure tody.*—Olive brown, yellowish-white beneath; crown, quill, and tail feathers blackish. Size of the hedge sparrow. Inhabits North America, where it feeds on insects. Frequents the decayed parts of trees, and has all the actions of the fly-catcher. It has an agreeable note, two or three times repeated, but not what can be called a song.

257 *Regius.* *King tody.*—Blackish brown, reddish beneath; crest chesnut, spotted with white at the tip; chin and eyelids white; bill dusky brown; breast with transverse blackish lines; legs flesh colour. This singular and beautiful species

Picæ.

species measures seven inches in length. Inhabits Cayenne, and is very rare.

258 *Platyrhyncos.* *Broad-billed tody.*—Yellowish-brown, yellow beneath; chin and spot on the crown white; wings and tail brown; bill very large and broad. Size of the nightingale. Figured by Latham.

259 *Cristatus.* Plate CCCXCV. Fig. 3. *Crested tody.*—Crest scarlet; body brown, spotted with white; wing coverts spotted with white; feathers of the crest tipped with black. Native of Guinea.

260 ALCEDO. 261 Characters.

Gen. 26. ALCEDO, *King's-fisher.*

Bill triangular, thick, straight, long, and acuminated; the tongue fleshy, very short, flat, and acute; feet, for the most part, gressorial.

The birds of this genus are dispersed over the whole globe; though it is supposed that only one species inhabits Europe. Most of them frequent rivers and the vicinity of waters, and live on fish, which they catch with singular art and dexterity. Sometimes they hover over the water, where a shoal of small fishes is seen playing near the surface; at other times, they wait with attention on some low branch, hanging over the water, for the approach of a single one, which is so unlucky as to swim that way. In either case they drop like a stone, or rather dart with rapidity on their prey. They seize the latter cross-ways in their bill, retire to a resting place to feed on it, devour it piecemeal, bones and all; and afterwards bring up the indigestible parts in pellets. The wings of most of this genus are very short; yet the birds fly rapidly, and with great strength. In their colours, blue of different shades predominates. Their nostrils are small, and generally covered.

262 *Cristata.* Plate CCCXCV. Fig. 5. *Crested king's-fisher.*—Bill black; an inch and a half long; crown feathers long, forming a crest, of a greenish colour, and barred with black; a fine blue stripe on each side of the neck; upper part of the body bright blue; upper wing coverts violet, and each feather tipped with a bright blue spot; legs and claws reddish; length nearly five inches. Inhabits Amboyna and the Philippine islands.

263 *Formosa.* *Splendid king's-fisher.*—Tail short; body yellowish-green; shoulders, throat, and rump yellow; wings and crown of the head blue; bill yellowish-horn colour; head with a bright yellow stripe on each side; smaller wing coverts edged with yellow; legs reddish-brown. A beautiful species, which inhabits South America.

264 *Ispida.* *Common king's-fisher.*—Tail short; body blue above, orange-coloured beneath; lores red; bill black; crown and wing coverts green, with blue spots; tail of a beautiful blue; irides and legs red. In the female the bill is not so long as in the other sex. Frequents running streams and rivers, in the banks of which it generally takes possession of a rat's hole to deposit its eggs. This hole is ascending, and generally two or three feet in the bank; at the end is scooped a hollow, at the bottom of which is a quantity of small fish-bones, nearly half an inch thick, mixed with the earth, and which are probably the castings of the parent birds, as they are found even before they have eggs. On this disgorged matter the female lays to the number of seven eggs, which are perfectly white and transparent, and of a short oval form. Before the young are able to fly, the hole becomes extremely fetid by the faeces of the brood, which cannot be carried away by the parent birds, as is common with most of the smaller species. As the old birds have nothing in their bill, when they go in to feed their young, it has been inferred, that they eject from the stomach for that purpose. When the young are nearly full feathered, they are extremely voracious, and may be discovered by their constant chirping. This species is reckoned the most beautiful of all the British birds, weighs one ounce and a quarter, and measures seven inches in length. It inhabits Europe, Asia, and Africa. It was formerly believed that if the body of this bird was suspended by a thread, some magnetic influence always turned its breast to the north. This, however, is as fabulous as the tradition, that its stuffed skin will preserve woollen cloth from the depredations of moths. There is a variety found in Senegal, about six inches and a half long, blue green varied with brown above, tawny beneath, and chin yellowish.

Picæ.

265 *Alcyon.* *Belted king's-fisher.*—Tail long, crested, blueish; belly white; breast ferruginous; a white spot before and behind the eyes; bill black; chin white; breast with a ferruginous band on the fore part; thighs rusty; shanks very short; legs brown; outer toe connected with the middle toe. Eleven inches long. Inhabits Carolina, and feeds on lizards and fish. It is subject to several permanent varieties, which occur in different parts of America.

266 *Amazonia.* *Amazonian king's-fisher.*—Glossy green; under parts of the body and lunule on the neck white; sides variegated with green; tail spotted with white; bill and legs black. Thirteen inches long. Inhabits Cayenne.

267 *Tuta.* *Respected king's-fisher.*—Tail long; body olive above, white beneath; eyebrows white; collar greenish black. Bill black; lower mandible white. Legs black. Eight inches and a half long. Native of the Society islands, where it is held sacred by the inhabitants, as are the species denominated *venerata* and *sacra*.

268 *Fusca.* *Great brown king's-fisher.*—Crested, olive above, whitish and obscurely striated beneath; temples and hind head dirty white; tail rounded with rusty and steel-blue lines, and tipt with white. The female has no crest. Eighteen inches long. Inhabits New Guinea.

269 *Cancrophaga.* *Crab-eating king's-fisher.*—Tail long; body blue-green, yellowish-tawny beneath; band through the eyes; wing coverts and tips of the quill feathers black. Twelve inches long. Inhabits Senegal, and feeds on crabs.

270 *Egyptia.* *Egyptian king's-fisher.*—Brown, with rusty spots; whitish, with cinereous spots beneath. Size of the Royston crow. Inhabits Lower Egypt, about Cairo; builds in sycamore and date trees, and feeds on frogs, insects, and small fish, which last it meets with in the field, when they are flooded. Its cry approaches to that of the common crow.

271 GALBULA. 272 Characters.

Gen. 27. GALBULA, *Jacamar.*

Bill straight, very long, quadrangular, pointed; nostrils oval, at the base of the bill; tongue short, sharp-pointed; thighs downy on the fore part; feet scansorial.

This is much allied to the preceding; but the toes are differently placed, namely, two before and two behind. The food of the jacamar is likewise different, as it feeds on insects alone; and, for that purpose, frequents moist woods.

Picæ. woods. Only four ſpecies have been deſcribed, and ſcarcely any information has hitherto been obtained relative to their economy and manners.

273 *Grandis.* *Great jacamar.*—Copper gold above, ferruginous beneath; head and limbs green gold; tail wedged, and longer than the body. Size of the green woodpecker. Native country unknown.

274 *Paradiſea.* *Paradiſe jacamar.*—Two middle tail feathers very long; body golden green; throat and wings white beneath; bill and legs black; head violet brown; tail much wedged. Inhabits Cayenne and Surinam; is 11 inches and a half long; flies in pairs; is leſs ſolitary than its congeners, and feeds on inſects.

275 MEROPS.

Gen. 28. MEROPS, *Bee-eater.*

276 Characters. Bill curved, quadrangular, compreſſed, carinated, pointed; noſtrils ſmall, at the baſe of the bill; tongue ſlender, the tip generally jagged; feet greſſorial.

The birds of this genus, with a few exceptions, inhabit the old continent. Their general food is inſects, and they are particularly fond of bees and waſps. They have no note beyond a whiſtle, and that far from agreeable. Like the king's-fiſher, they breed in holes in the banks of rivers.

277 *Apiaſter.* *Common bee-eater.*—Back ferruginous; belly and tail bluiſh-green; two of the tail feathers longer than the others; chin pale yellow; bill black; irides red; front blue green; crown, hind head, and neck, bay; a black ſtreak from the bill to the hind head; tail wedged, the feathers edged inwardly with cinereous; legs cheſnut; claws reddiſh-black. A variety ſometimes occurs with the bill convex and uncarinated, and the toes unconnected at the laſt joint. The common bee-eater meaſures 10 inches from bill to tail. It inhabits various parts of Europe, Aſia, and Africa; and is very plentiful in the ſouthern parts of Ruſſia, particularly about the rivers Don and Wolga. In the third volume of the Linnæan Tranſactions an account is given of one of this ſpecies having been ſhot, for the firſt time, in Britain, near Mattiſhall, in Norfolk, in July 1794. A flight of about 20 was ſeen in June; and the ſame flight, as was ſuppoſed, much diminiſhed in number, was obſerved paſſing over the ſame ſpot in October following. They feed, on the wing, upon bees, gnats, flies, and other inſects; or, in defect of theſe, upon ſeeds. Their neſt is compoſed of moſs, and the eggs, from five to ſeven, are perfectly white, and about the ſize of thoſe of a ſtare. They are gregarious and migratory, quitting the colder latitudes, in great flocks, in autumn. When the ſun ſhines on them, in their flight, they are a pleaſing object, as they appear gilded. Kolben remarks, that they guide the Hottentots to the honey, which the bees lay up in the clefts of the rocks.

278 *Viridis.* *Indian bee-eater.*—Green; band on the breaſt black; chin and tail blue; two of the tail feathers longer than the others; bill and band acroſs the eyes black; legs brown. There are ſeveral varieties. Eight inches and a half long. Inhabits India.

279 *Superbus.* *Superb bee-eater.*—Red; front, throat, and rump, blue; two middle tail feathers longer than the others. Nine inches long.

280 *Caruncula-tus.* *Wattled*, or *New Holland bee-eater.*—Brown; belly yellow; wattles carunculated; tail wedged, tipt with white; bill black; noſtrils pervious, and half covered with a membrane; crown blackiſh; a ſilvery ſtripe at the angle of the mouth; a long, orange, pendent caruncle behind the baſe of the lower mandible; legs browniſh, the outer toe connected at the baſe to the middle one. Fourteen inches and a half long. Inhabits New Holland; is pretty numerous on the ſea ſhores of that country; chatters inceſſantly; is very bold; feeds on inſects, and ſucks the honey from the different ſorts of Banſkia. Picæ.

281 *Cornicula-tus.* *Horned*, or *knob-fronted bee-eater.*—Brown; head ſomewhat naked; under parts of the body and tips of the tail feathers whitiſh; a blunt ſhort eminence, like the rudiment of a horn, on the fore head. Size of a miſſel thruſh. This ſingular ſpecies alſo inhabits New Holland, and is well figured in White's Journal.

282 *Erythro-pterus.* *Red-winged bee-eater.*—Under part of the body of an olive or dirty-white colour; throat yellow; wings and tail red, tipt with black; bill one inch long, black; legs black. Six inches long. Inhabits Senegal. Plate CCCXCV. Fig. 1.

283 UPUPA.

Gen. 29. UPUPA, *Hoop*, or *Hoopoe.*

284 Characters. Bill arched, long, ſlender, convex, a little compreſſed, ſomewhat obtuſe; noſtrils ſmall, at the baſe of the bill; tongue obtuſe, entire, triangular, very ſhort feet greſſorial.

Of the ſpecies included under this genus, the firſt only is found in Britain. They feed on inſects, haunt dunghills, and are, in general, uncleanly in their manners.

285 *Epops.* *Common hoop.*—Variegated with blackiſh and rufous white, beneath; creſt pale orange, tipt with black; tail black, with a white band; bill and legs black; irides hazel; back and wings with black and white lines; neck reddiſh-brown; creſt of a double row of feathers; tail feathers 10. The weight of this beautiful bird is about three ounces, and the length 12 inches. Inhabits Europe, Aſia, and Africa; but only viſits this country, occaſionally, in autumn, and is very ſeldom known to breed with us. The female is ſaid to have two or three broods in the year. Seldom makes a neſt; but lays her eggs, which are generally four or five, blueiſh-white, and marked with pale brown ſpots, in the hollow of a tree, and ſometimes in a hole of a wall, or even on the ground. Its food conſiſts chiefly of inſects of the beetle tribe. It is a ſolitary bird, two of them being ſeldom ſeen together. In Egypt, where they abound, they are ſeen only in ſmall flocks. Its creſt uſually falls behind on its neck, except when it is ſurpriſed or irritated, and then it ſtands erect; the tail, too, being, in that caſe, uſually erected, and ſpread like a fan.

286 *Magna.* *Grand hoop*, or *grand promerops.*—Black; head, neck, and breaſt, gloſſy green; ſcapular and lateral tail feathers falcated; tail very long. "This moſt extraordinary and beautiful bird (obſerves Dr Latham), is near four feet in length, from the tip of the bill to the end of the tail; the body is the ſize only of a middling pigeon, though much elongated in ſhape. The bill is three inches long, pretty much curved, and black; the head, hind part of the neck, and upper part of the belly, are of a ſhining green; the fore part of the neck, and lower part of the belly, without gloſs; the ſcapular feathers are of a ſingular conſtruction; the webs on one ſide of the ſhaft being exceeding ſhort, and on the other of a great length; the ſhape of them falciform: they

they are of a purpliſh black colour, with the ends, for three quarters of an inch, of a moſt brilliant gilded gloſſy green, though ſome of them, in a different light, reflect a blue gloſs; beneath each wing ariſes a thick tuft of feathers, eight inches and a half in length, and of a texture reſembling the herring-bone ones in the *greater bird of Paradiſe*; and, beſides theſe, on each ſide of the tail are five or ſix falciform feathers, with unequal webs, as the ſcapulars, though not half ſo much curved; the colour half duſky, half-greeniſh brown; the laſt divided from the other colour, on each feather, in an oblique manner; the tail conſiſts of 12 feathers, and is of an enormous length, the middle ones meaſuring no leſs than 28 inches; but each of the others ſhortens as it proceeds outwards, to the outer one of all, which is only five inches in length; the colour of all of them is blue black, with a poliſhed ſteel gloſs in ſome lights; the legs are black." Dr Latham has annexed a coloured figure. Little elſe is known of this remarkable ſpecies, except that it inhabits New Guinea.

287 *Erythrorhynchos.* *Red-billed hoop.*—Black green; belly black; tail wedged; ſix firſt quill and lateral tail feathers ſpotted with white; bill and legs red; feathers of the head and neck ſilky, and ſomewhat downy. Fifteen inches long. Inhabits Aſia and Africa. Figured by Latham.

288 CERTHIA.

Gen. 30. CERTHIA, *Creeper*.

289 Characters. Bill arched, ſlender, ſomewhat triangular, pointed; tongue various, though generally pointed; feet formed for walking.

The birds of this genus are ſpread over the globe. They live chiefly on inſects; their noſtrils are ſmall; their tail is compoſed of 12 feathers; their feet are large, with a large back toe; their claws are long and hooked. Moſt of them have an acute tongue; though in ſome it is flattened at the point, in others ciliated, in a few tubular. There are a conſiderable number of ſpecies, of which only one is a native of Britain.

290 *Familiaris.* *Common creeper*—Gray; white beneath; quill feathers brown, ten of them with a white ſpot; head and neck brown, with black ſtreaks; rump tawny; wing coverts varied brown and black; quill feathers duſky, tipt with white, edged and barred with tawny; breaſt and belly ſilvery; tail long, tawny, the feathers ſloping off to a point. Weighs about two drams; length five inches. Inhabits Europe, Aſia, and America. Runs with great facility on all ſides of ſmall branches of trees, in ſearch of inſects and their eggs, which conſtitute its food. Except the creſted wren, it is the ſmalleſt of Britiſh birds; and, though pretty common, is not ſeen without difficulty, from the eaſe with which, on the appearance of any one, it eſcapes to the oppoſite ſide of the tree. Its neſt is compoſed of dry graſs and the inner bark of wood, looſely put together, and lined with ſmall feathers; and it is uſually conſtructed in ſome hole, or behind the bark of a decayed tree. The eggs are from ſix to eight, white, and minutely ſpeckled with bright ruſt colour. During incubation, the female is fed by the other ſex. The note of the common creeper is weak, monotonous, and deliberately uttered, but rarely heard in winter.—In North America, is found a variety of a conſiderably larger ſize.

291 *Coccinea.* *Hook-billed red creeper.*—Scarlet; wings and tail black; bill longer than the head, bent like a ſcimitar, whitiſh; legs and long claws blackiſh; tail feathers ſhort, pointed; edges of the wings, and roots of the throat feathers white. This beautiful ſpecies inhabits the Sandwich iſlands, and is much uſed by the natives in their feathered dreſſes.

292 *Sannio.* *Mocking creeper.*—Olive; crown inclining to violet; ſpot on the cheeks white; wings and ſubforked tail brown. Seven inches long. Inhabits New Zealand; has a very imitative voice, and ſips the ſweet moiſture from the nectaries of flowers.

293 *Cardinalis.* *Cardinal creeper.*—Black; head, neck, breaſt, and line down the middle of the back, red; tail even. Size of the common ſpecies. Inhabits the iſland of Tanna, and ſucks the nectaries of flowers.

294 *Muraria.* *Wall creeper*, or *ſpider catcher.*—Cinereous; wings with a tawny ſpot; bill ſubulate, ſharp edged, longer than the head; neck whitiſh beneath; quill feathers black; wings with a roſy ſpot; tail feathers whitiſh; claws ſtrong, particularly the hind one. The chin and throat of the female are white. Size of a ſparrow; length ſix inches eight lines. Inhabits ſouthern Europe and Aſia. Is ſolitary; feeds on inſects, and has the ſame manners as the common creeper, except that it haunts ruined edifices, old walls, arches, &c. and is particularly fond of ſpiders. According to Scopoli, it migrates ſingly towards the end of autumn. Its flight is vague and uncertain, and it climbs by leaps. Builds frequently in holes of walls.

295 *Puſilla.* *Little brown and white creeper.*—Brown; white beneath; eyebrows white; tail feathers brown, the outer ones white at the tip; a black ſtreak from the bill to the eyes; quill feathers edged with a braſſy hue. Three inches and a half long. Inhabits India. Feeds on flies, and is fond of honey.

296 *Cærulea.* *Blue creeper*, or *certhia of Guiana.*—Blue; band acroſs the eyes, chin, wings, and tail, black. Four inches long, and ſomewhat bigger than the common creeper. Makes its neſt of dried ſtalks or graſs, in the form of a retort, and open beneath, ſuſpending it from the ſlender and extreme branches of trees, and thus ſecuring it againſt the attacks of the monkey, ſnake, and lizard.—Varies, in having the bill and legs ſometimes red.

297 *Chalybea.* *Collared creeper.*—Gloſſy green; breaſt red, with a ſteel-blue bar on the fore-part. Four inches and a half long. Inhabits the Cape of Good Hope; feeds on inſects and the nectar of flowers, and ſings ſweetly.

298 *Flaveola.* *Black and yellow creeper*, *yellow-bellied creeper*, &c.—Black; pale yellow beneath; eyebrows whitiſh; outer tail feathers tipt with white. The markings, however, vary conſiderably. From four to five inches long. Inhabits the Weſt Indies, and feeds principally on the juice of the ſugar cane, which it draws out by inſinuating its bill into any crevice or crack of the ſtalk.

299 *Armillata.* *Braceletted creeper.*—Green; wings, when folded, black above; beneath yellow; ſhoulders, bracelets on the thighs, and ſpots on the rump, ſapphire blue; bill black; legs yellowiſh; body beneath whitiſh-green; vent yellowiſh; quill feathers black, inner edge yellow. Length five inches. Native of Surinam. Plate CCCXCIV. Fig. 1.

300 *Cantillans.* *Orange-backed creeper.*—Bluiſh-gray; ſpot on the back, and under parts of the body yellow; bill and legs black; irides red. Three inches long. Inhabits China, and is remarkable for the ſweetneſs of its ſong.

Picæ.

301 *Pulchella.* *Beautiful creeper.*—Two middle tail feathers very long; body gloſſy green; breaſt red; bill, legs, and tail feathers, blackiſh, the latter edged with gold; belly whitiſh; wings and greater coverts brown. Seven inches long. Inhabits Senegal.

302 *Famoſa.* *Famous creeper.*—Two middle tail feathers very long; body gloſſy green; armpits yellow; lores black; bill, legs, claws, and tail black; a black line between the bill and eyes. Female green brown; yellowiſh beneath; breaſt green; two middle tail feathers ſhorter than in the male. Nine inches long. Inhabits the Cape of Good Hope.

303 *Lotenia.* *Loten's creeper.*—Blue; bar on the breaſt gold-red; lores black; bill ſubulate, black, twice as long as the head; tongue compreſſed at the tip; head, neck, back, rump, and upper tail coverts ſometimes blue, ſometimes gold-green; breaſt, belly, and vent gloſſy black; in the female dirty white, ſpotted with black; wings black; leſſer coverts violet; middle green; greater black; tail even. Upwards of five inches long. Inhabits Madagaſcar and Ceylon. Makes a cup-ſhaped neſt, like that of a chaffinch, of the down of plants. The female generally lays five or ſix eggs. This ſpecies is ſometimes chaſed by a very voracious ſpider, as large as itſelf, which ſeizes on the whole brood, and ſucks the blood of the young birds.

304 TROCHILUS. Gen. 31. TROCHILUS, *Humming bird.*

305 Characters. Bill ſubulate, filiform, tubular at the tip, longer than the head; upper mandible ſheathing the lower; tongue filiform, the two threads coaleſcing, and tubular; feet greſſorial.

The birds of this ſpecies are very ſmall, and, with a very few exceptions, inhabit South America. Their bill and feet are weak, their noſtrils minute, and their tongue is capable of being darted far out. They fly very rapidly, take their food on the wing, ſucking the honey juice of flowers, and ſometimes alſo ſwallowing inſects, the fragments of which have been found in their ſtomachs. They are bold, pugnacious, and gregarious, and make a louder noiſe by the motion of their wings than by their voice. They conſtruct an elegant hemiſpherical neſt of the down of a ſpecies of thapſus, and ſuſpend it from the branches of trees, where it is hid by the leaves, the female laying too white eggs of the ſize of peas, which are hatched by the alternate incubation of the male and female. Theſe minute birds are taken by aſperſing them with water from a ſyphon, as the fineſt ſhot would blow them to pieces. They are ſaid to hybernate. The brilliancy of their colouring greatly exceeds the powers of painting and deſcription. The green, red, and blue of their diminutive plumage is like beaten gold, and reflects the moſt beautiful ſplendor in ſunſhine.

A. *Bill curved.*

306 *Paradiſeus.* *Paradiſe humming bird.*—Red; wings blue; head creſted; middle tail feathers very long; bill and legs black; wing coverts blue. Eight inches and a half long. Inhabits Mexico.

307 *Exilis.* *Little humming bird.* Greeniſh-brown, with a ſcarlet gloſs; wings and tail black; creſt green at the baſe, tipt with gold; bill black. One inch and a half long. Inhabits Guiana.

Topaz humming bird.—Red; middle tail feathers very long; head brown; chin gold-green; rump green; bill, head, and neck black; breaſt roſy; back and wing coverts orange red; quill and middle tail feathers purple; the reſt orange. Female almoſt entirely green gold. Six inches long. Inhabits Surinam. Picæ. 308 *Pella.*

309 *Mango.* *Mango humming bird.*—Gloſſy green; tail nearly equal, and ferruginous; belly black; bill and legs black; a blue line dividing the colours of the back and belly; vent white; two middle tail feathers black. Four inches long. Inhabits Mexico, Brazil, and St Domingo. According to Albinus, it is alſo found in Jamaica, building its neſt of cotton in the phyſic-nut-tree, and laying two white eggs as big as peas. There are ſeveral varieties. Under this ſpecies, Dr Latham relates the following intereſting particulars.

"We have before related a circumſtance of the poſſibility of keeping humming birds alive for ſome time, by means of ſugar and water; but this was in their own country and climate. In addition to this, we have been informed, on undoubted veracity, of the following fact: A young gentleman, a few days before he ſet ſail from Jamaica to England, was fortunate enough to meet with a female humming bird, ſitting on the neſt and eggs; when, cutting off the twig, he brought all together on board the ſhip; the female became ſufficiently tame, ſo as to ſuffer itſelf to be fed with honey, and during the paſſage hatched two young ones; however, the mother did not ſurvive long, but the young were brought to England, and continued alive for ſome time in the poſſeſſion of Lady Hammond. Sir H. Englefield, Baronet, and Colonel Sloane, both witneſſes of the circumſtance, informed me that theſe little creatures readily took honey from the lips of Lady Hammond, with their bills: one of them did not live long, but the other ſurvived at leaſt two months from the time of its arrival."

B. *Bill ſtraight.*

310 *Colubris.* *Red-throated humming bird.*—Green-gold; tail feathers black, the three lateral ones ferruginous, tipt with white; chin flame colour; bill black; chin ſcarlet, with a beautiful gold gloſs. The female brown above, whitiſh beneath; tail ſubequal, ruſty at the baſe, and tipt with white. Three inches and one fourth long. Inhabits America, as far north as Canada. This beautiful little creature flies ſo ſwifty, that the eye is incapable of purſuing it, and the motion of its wings is ſo rapid as to be imperceptible to the niceſt obſerver. It never feeds but on the wing, ſuſpended over the flower from which it extracts its nouriſhment. Like the bee, having exhauſted the honeyed juice of one flower, it wanders to the next, in ſearch of new ſweets. It is moſt partial to thoſe flowers which have the deepeſt nectaries: and, in the countries which theſe birds inhabit, whoever ſets plants of this deſcription before his window, may depend on being viſited by multitudes of them. It is very entertaining to ſee them ſwarming around the flowers, and trying every tube by thruſting in their bills. If they find that their companions have anticipated them, and robbed the flower of its honey, they will frequently, in a fit of rage, pluck it off, and throw it on the ground, or even tear it in pieces. Numbers will ſometimes contend very fiercely for the poſſeſſion of the ſame flower. During the conflict, they frequently purſue the fugitives into the apartments of thoſe houſes whoſe windows are

left

Picæ.

left open, take a turn round the room as flies do with us, and then ſuddenly regain the open air. When feeding, they will allow perſons to come within two yards of them; but, on a nearer approach, they dart off with wonderful ſwiftneſs. The red-throated humming bird moſt frequently builds on the middle of a branch of a tree, and the neſt is ſo ſmall, that it cannot be ſeen by a perſon who ſtands on the ground. It is quite round, the outſide, for the moſt part, compoſed of the green moſs common on old pales and trees, and the inſide of the ſofteſt vegetable down which the birds can collect. Sometimes, however, they vary the texture, uſing flax, hemp, hairs, and other ſimilar materials. They are ſometimes, likewiſe, known to fix it on ſome low buſh, on a ſtalk of the tobacco plant, or even on the ſide of a pod of ocra (*Hibiſcus eſculentus*, Lin.). The female lays two eggs, which are white, and equal in thickneſs at both ends. When theſe birds obſerve any one climbing the tree in which they have their neſts, they attack him in the face, attempting to ſtrike him in the eyes, and coming, going, and returning, with ſuch ſwiftneſs, that one would ſcarcely credit it who had not ſeen it himſelf. This ſpecies, like the others of its genus, is ſeldom caught alive. A friend of Monſieur du Pratz had, however, this pleaſure. He had obſerved one of them enter into the bell of a convolvulus; and, as it had quite buried itſelf to get at the bottom, he ran immediately to the ſpot, ſhut the flower, cut it from the ſtalk, and carried off the bird a priſoner. He could not, however, prevail on it to eat; and it died in the courſe of two or three days. Charlevoix informs us, that he had one of them in Canada, for about twenty-four hours. It ſuffered itſelf to be handled, and even counterfeited death, that it might eſcape; but it fell a real ſacrifice to a ſlight froſt during the night. "My friend Captain Davies informs me, (ſays Dr Latham), that he kept theſe birds alive for four months by the following method:—He made an exact repreſentation of ſome of the tubular flowers, with paper faſtened round a tobacco pipe, and painted them of a proper colour. Theſe were placed in the order of nature, in the cage in which the little creatures were confined: the bottoms of the tubes were filled with a mixture of brown ſugar and water as often as emptied; and he had the pleaſure of ſeeing them perform every action; for they ſoon grew familiar, and took their nouriſhment in the ſame manner as when ranging at large, though cloſe under the eye."

311 *Moſchitus.* *Ruby-necked humming bird.*—Green-gold; tail even and ferruginous, the two outer feathers tipt with brown; wings black; bill and legs blackiſh; crown, hind head, and neck ruby; body brown beneath. Female whitiſh-gray beneath, with a gold ſpot on the breaſt and throat. Upwards of three inches long. Inhabits Guiana, Brazil, and Surinam. Reputed the moſt beautiful of the tribe.

312 *Mellivorus.* *White-bellied humming bird.*—Tail feathers black, the lateral ones white; head blue; back green; belly white. Above four inches long. Inhabits Surinam. Edwards remarks, that the whole of the plumage, in the ſun, ſeems as if mixed with threads of gold.

313 *Miximus.* *Leaſt humming bird.*—Green; whitiſh beneath; lateral tail feathers white on the outer edge; bill and legs blackiſh; wings violet brown; tail feathers bluiſh-black, the primary totally gray; ſecondary gray from the middle to the tip. Female dirty greeniſh-brown, whitiſh beneath. Inhabits South America, and ſome of the Weſt India iſlands. The leaſt of all known birds; being hardly an inch and a quarter in length, and weighing from twenty to forty-five grains; thus being ſurpaſſed in weight and dimenſions by more than one ſpecies of bee. The female is even leſs than the male.

Picæ.

Order III. ANSERES.

314 Anseres.

315 Characters. Bill ſomewhat obtuſe, covered with a ſkin, gibbous at the baſe; mouth toothed; tongue fleſhy; feet palmated, and formed for ſwimming.

Moſt of the birds belonging to this order dwell much in the water. Their feet and legs are ſhort, concealed under the feathers, and placed more behind than in other birds. Their toes are ſhort, and generally compreſſed, ſo that they eaſily cleave the water, and by means of their membranes or webs, form, as it were, broad oars. Their plumage is thicker, cloſer, and better furniſhed with down than that of other birds. The gland which all birds have at the rump, and from which they expreſs an oily matter to preſerve their feathers moiſt, is moſt conſiderable in the anſeres, and contributes to make their plumage impermeable to water. They feed on fiſh, aquatic animals, and plants. In general they are polygamous, and make their neſts among reeds, or in moiſt places. The young are ſoon able to ſeek their own food; yet the mother leads and protects them for ſome time, and the male frequently kills them. For the moſt part they lay many eggs; and the fleſh of many is eatable, though it frequently ſavours of oil, or of fiſh.

Gen. 32. Anas.

316 Anas.

317 Characters. Bill convex, obtuſe, the edges divided into lamellated teeth; tongue fringed and obtuſe; the three fore toes connected, the hind one ſolitary.

This is a very numerous genus, and includes ſwans, geeſe, and ducks.

A. *Bill gibbous at the baſe.*

318 *Cygnus.* *Wild ſwan, hooper, elk, whiſtling ſwan*, &c.—Bill ſemicylindrical, and black; cere yellow; body white; eyelids naked, yellow; legs black; ribs eleven. This is obviouſly a diſtinct ſpecies from the common or mute ſwan, being of a ſmaller ſize, and having the windpipe differently conſtructed. It weighs from fifteen to twenty-five pounds, and meaſures nearly five feet in length. It inhabits Europe, Aſia, and America, affecting chiefly the northern regions of the globe, and ſeldom appearing in England, except in hard winters. On the approach of ſpring, they quit their ſouthern ſtations, and again retire northward to breed. A few indeed drop ſhort, and perform that office by the way, halting in ſome of the Hebrides, Orkneys, Shetland, or ſome ſolitary iſland. But the great bodies of this ſpecies occur on the large rivers and lakes near Hudſon's bay, and thoſe of Kamtſchatka, Lapland, and Iceland. They are ſaid to return to the latter place in flocks of about a hundred at a time, in ſpring; and alſo to pour in on that iſland from the north, in nearly the ſame manner, on their way ſouthward, toward the cloſe of autumn, flying very high in the air, and in ſuch a compact body, that the bill of one touches the tail of another. The young, which

Anſeres. are bred there, remain throughout the firſt year; and in Auguſt, when they loſe their feathers, and are unable to fly, the natives kill them with clubs, ſhoot, and hunt them down with dogs, by which they are eaſily caught. The fleſh is highly eſteemed, as are the eggs, which are gathered in the ſpring. The Icelanders, Kamtſchatka-dales, and other inhabitants of the northern world, dreſs their ſkins with the down on them, ſew them together, and convert them into various ſorts of garments. The northern American Indians have recourſe to the ſame expedient for clothing themſelves, and ſometimes weave the down as barbers do the cawls for wigs, and then manufacture it into ornamental dreſſes for the women of rank, while the larger feathers are formed into caps and plumes, to decorate the heads of their chieftains and warriors. They likewiſe gather the feathers and down in large quantities, and barter or ſell them to the inhabitants of more civilized nations. Notwithſtanding the fabulous accounts and poetical deſcriptions of the ſong of the dying ſwan, its voice is ſhrill, harſh, and piercing, not unlike the ſound of a clarionet, when blown by a novice in muſic. It is aſſerted, however, by thoſe who have heard the united and varied voices of a numerous aſſemblage of them, that they produce a more harmonious effect, particularly when ſoftened by the murmur of the waters. At the ſetting in of froſty weather, wild ſwans are ſaid to aſſociate in prodigious multitudes, and, thus united, to uſe every effort to prevent the water from freezing; which they are enabled to accompliſh for a conſiderable length of time, by conſtantly ſtirring and daſhing it with their extended wings. The wild ſwan has been ſtyled "the peaceful monarch of the lake," becauſe, conſcious of his ſuperior ſtrength, he fears no enemy, nor ſuffers any bird, however powerful, to moleſt him, at the ſame time that he preys on none of the feathered tribe. His vigorous wing ſhields him againſt the attacks even of the eagle, and his blows from it are ſo powerful, as to ſtun or kill the fierceſt of his foes. His food conſiſts of the graſſes and weeds, and the ſeeds and roots of plants which grow on the margins of the water, and of the myriad inſects which ſkim over or float on its ſurface; occaſionally, too, of the ſlimy inhabitants within its boſom. The female makes her neſt of the withered leaves and ſtalks of reeds and ruſhes, and commonly lays ſix or ſeven thick ſhelled, white eggs. The incubation is ſaid to laſt ſix weeks. Both male and female are very attentive to their young, and will ſuffer no enemy to approach them.

319 *Olor.* *Tame ſwan.*—Bill ſemicylindrical, black; cere black; body white. The plumage of this ſpecies is of the ſame ſnowy whiteneſs as that of the preceding, and the bird is covered next the body with the ſame kind of fine ſoft down; but it is of a larger ſize, and is furniſhed with a projecting, callous, black tubercle, or knob, at the baſe of the upper mandible. But the moſt remarkable diſtinction conſiſts in the conformation of the windpipe, which, in the preſent ſpecies, enters at once into the lungs, ſo that the utmoſt noiſe the bird can utter, is a mere hiſs: whereas, in the wild ſpecies, the windpipe firſt enters the cheſt a little way, is then reflected in the form of a trumpet; after which it enters a ſecond time, when, dividing into two branches, it goes on to join the lungs. The manners and habits of both ſpecies in the wild ſtate are very ſimilar. The beauty, graceful motion, and majeſty of this bird, when it is wafted along a piece of water, attract the admiration of every beholder: but, out of the liquid element, the elegance of its form in a great meaſure diſappears. While the male and female are employed with the cares of the young brood, it is not ſafe to approach them; for they will fly on a ſtranger, and ſometimes beat him to the ground by repeated blows. Notwithſtanding, however, their great ſtrength of wing, a ſlight blow on the head will diſpatch them. Multitudes of this ſpecies are found in Ruſſia and Siberia, as well as farther ſouthward, in a wild ſtate. They occur, without an owner, on the Trent, on the inlet of the ſea, near Abbotſbury in Dorſetſhire, and on ſome other rivers and lakes, in different parts of the Britiſh iſles. Thoſe on the Thames have, for ages, been protected as royal property; and it is ſtill reckoned felony to ſteal their eggs. In former times great numbers were reared for the table; but they are now reckoned by moſt a coarſe kind of food. A fattened cygnet, however, is ſtill accounted a great delicacy, and uſually fetches upwards of a guinea in the poultry market. It is generally believed that the ſwan lives to a great age, though the term of three centuries, aſſigned to it by ſome authors, is certainly much exaggerated. The female neſtles among the rough herbage near the water's edge, lays from ſix to eight large white eggs, and ſits on them about as many weeks before they are hatched. The young do not acquire their full plumage till the ſecond year. If kept out of the water, and confined to a court-yard, the ſwan ſoon becomes dirty, dull, and ſpiritleſs. Its uſual food conſiſts of fiſh and water plants.

320 *Atrata.* *Black ſwan.*—Black; wings edged with white; bill red; upper mandible blackiſh at the tip, a yellow ſpot near the lip; legs black; feet paler. Extent of wing four feet eight inches. Inhabits various parts of New Holland; but little is known reſpecting its manners.

321 *Hyperboreа.* *Snow gooſe.*—Body ſnow-white; front yellowiſh; ten firſt quill feathers black; bill and legs red. Size of a gooſe; length two feet eight inches; extent of wing three feet and a half; weight between five and ſix pounds. Great numbers of this ſpecies occur about Hudſon's bay; viſit Severn river in May, and ſtay a fortnight, but go farther north to breed. They return to Severn Fort about the beginning of September, and ſtay till the middle of October, when they depart for the ſouth, and are obſerved in immenſe flocks attended by their young. At this time many thouſands are killed by the inhabitants, who pluck and eviſcerate them, and put them into holes in the earth, where they are preſerved quite ſweet by froſt, throughout the ſevere ſeaſon. Theſe birds ſeem alſo to occupy the weſt ſide of America and Kamtſchatka. In the ſummer months they are plentiful on the arctic coaſt of Siberia; but never migrate beyond 130° of longitude. They are ſuppoſed to paſs the winter in more moderate climes, as they have been ſeen flying over Sileſia; probably on their paſſage to ſome other country, as it does not appear that they continue there. Thoſe of America, in like manner, winter in Carolina. The Siberians decoy them by a perſon covered with a white ſkin, and crawling on all fours, whom they are ſtupid enough to miſtake for their leader, and whom they follow, when driven by men in their rear, till he entangles them in nets, or leads them into a ſort of pond prepared for the purpoſe.

322 *Antarctica.* *Antarctic gooſe.*—Snowy; bill black; legs yellow.

The

Anſeres. The female has the tail fleſh coloured, and the body brown, with tranſverſe white lines. From twenty-four to twenty-ſix inches long. Inhabits Falkland iſlands.

323 *Leucoptera.* *Buſtard gooſe.*—White; two middle tail feathers, primary quill feathers, and greater wing coverts, black; nape, and upper part of the back, with numerous black lines; wings with a blunt ſpine at the flexure, and a duſky green ſpot; greater wing coverts tipt with white; ſecondary quill feathers half black, half white; legs black. This is the *ſea-gooſe* of Clayton, and the *white-winged antarctic gooſe* of Brown. It meaſures from thirty-two to forty inches in length, ſtands pretty high on its legs, walks and flies with great eaſe, and has not that diſagreeable cackling cry peculiar to the reſt of its kind. It generally lays ſix eggs; and its fleſh is reckoned wholeſome, nouriſhing, and palatable. Inhabits the Falkland iſlands.

324 *Cinerea.* *Loggerhead gooſe*, or *racehorſe duck.*—Cinereous; duſky beneath; vent white; wings and tail ſhort and black; bill, irides, and tubercle on the wings and legs yellow. Length thirty-two inches; weighs from twenty to thirty pounds. Obſerved on Falkland iſlands, Staaten Land, &c.; moſtly in pairs, though ſometimes in large flocks. From the ſhortneſs of their wings, they were unable to fly, but they uſed them in the water as oars, and ſwam ſo rapidly, that it was very difficult to ſhoot them when on that element. In order to catch them, the ſailors would ſurround a flock with boats and drive them on ſhore, where, unable to raiſe themſelves from the ground, they ran very faſt; but ſoon growing tired, and ſquatting down to reſt, were eaſily overtaken and knocked on the head. Their fleſh, however, was not much reliſhed, being rank and fiſhy.

325 *Tadorna.* *Sheldrake*, or *burrow duck.*—Bill turning up at the point; forehead compreſſed; head greeniſh-black; body white and variegated; bill and legs red; head and neck violet; collar white; back white; breaſt brown; belly white, with a black line; firſt quill feathers black, the next violet, inner ones ferruginous, the laſt white; tail white, tipt with black. The female has leſs vivid colours. This elegant ſpecies of duck weighs about two pounds and a half, and meaſures about two feet three inches. It inhabits Europe and Aſia, and is not uncommon on many parts of our coaſts, remaining all the year. The female makes choice of a rabbit-burrow, wherein to depoſit her eggs, which are numerous, amounting ſometimes to ſixteen, and which ſhe covers with down from her own body. The neſt is generally near the water, whither the female leads her young ſoon after they are hatched. This ſpecies is rarely met with remote from ſalt water; but if the eggs are taken, and hatched under a hen, the young become tame, and may be kept in ponds. They very ſeldom breed when in a ſtate of confinement. Their principal food conſiſts of ſea-weeds, ſmall ſhell-fiſh, and marine inſects. The fleſh is rancid.

326 *Fuſca.* *Velvet duck.*—Blackiſh; lower eyelid, and ſpot on the wings, white; bill yellow, black in the middle, gibbous at the baſe; legs red. Female without the gibboſity on the bill, and body blackiſh. From 20 to 22 inches long. Inhabits Europe and South America. It is ſometimes, though not often, ſeen on our coaſts in winter. Frequents Hudſon's bay, where it breeds in ſummer; and is not uncommon in Ruſſia and Siberia. Lives on fuci and ſhell-fiſh. The female makes its neſt of graſs, and lays from four to 10 white eggs. The catching of this ſpecies is a favourite diverſion of the Tunguſi, who dwell on the river Ochota, and who chaſe great numbers of theſe birds, during the moulting ſeaſon, into ſhallow water, and then knock them down with clubs. They take many of them alive, and, thruſting a needle through their eyes, carry fifty or more on a ſtring. It is alleged that the birds, thus treated, will live for two or even three days. Anſeres.

327 *Nigra.* *Scoter*, or *black diver.*—Body quite black; bill gibbous at the baſe; head and neck ſprinkled with purple; tail ſomewhat wedged. Female of a browner hue, and without the protuberance at the baſe of the bill. Length 22 inches; feeds on graſs and ſhell-fiſh, and taſtes rancid. Theſe birds inhabit Europe and North America, and moſtly reſide at ſea, diſtant from the ſhore. With us they are ſeen only in the winter ſeaſon, when they are plentiful on ſome parts of the coaſt of France. They are great divers, and abound in moſt of the northern regions of the world. They want the horny nail at the end of the bill, which is common to the reſt of the genus. As they taſte ſtrongly of fiſh, they are allowed by the Romiſh church to be eaten in Lent.

328 *Albifrons.* *White fronted*, or *laughing gooſe.*—Brown; white, ſpotted with black beneath; front and rump white; bill and legs flame colour. Breaſt cinereous; tail duſky, edged with white. Two feet four inches long. Inhabits Europe, Aſia, and America, and viſits the fenny parts of England, in ſmall flocks, in winter. During ſevere weather it is killed on the coaſt as well as on rivers, and not uncommonly brought to market and ſold for the common wild gooſe. It leaves us in the earlieſt ſpring, none being ſeen after the middle of March.

B. *Bill equal at the baſe.*

329 *Marila.* *Scaup duck.*—Black; ſhoulders waved with aſh colour; belly and ſpot on the wings white; bill broad, bluiſh-aſh; irides yellow; head and neck greeniſh-black; back and wing coverts waved with black, and cinereous; legs and primary quill-feathers duſky; ſecondary white, tipt with black; tail coverts, and vent, black. Female brown; bill black, ſurrounded with a circle of white feathers; neck ruſty; belly, and bar on the wings, white; legs black. From 18 to 20 inches long; feeds on ſhell-fiſh, and inhabits Europe, northern Aſia, and America. It is found in Iceland, Lapland, Sweden, Norway, Ruſſia, and Siberia, and as high as Hudſon's bay in America. In England, it appears in the winter ſeaſon, in ſmall flocks, and is frequently obſerved in freſh waters. In October it begins to emigrate ſouthward in flocks. It alſo frequently lives in holes under ground.

330 *Anſer.* *Gray lag gooſe*, or *wild gooſe.*—Bill ſemicylindrical; body cinereous above, paler beneath; neck ſtriated; bill fleſh-coloured and tipt with white; rump and vent white; legs fleſh-coloured; claws black, wants the wing ſpot. Weighs eight or nine pounds, and is about 33 inches long. Varies much in colour by domeſtication, in which ſtate it is our common tame gooſe. Inhabits in flocks the northern parts of Europe, Aſia, and America; reſides the whole year in the Lincolnſhire fens, where it breeds, laying eight or nine eggs which are hatched in 28 or 30 days. Frequents lakes and rivers, and lives to a great age. The domeſtic gooſe is well known. It is bred in great multitudes in the fens of Lincolnſhire, both on account of its fleſh and feathers. The geeſe are there attended by a perſon called a

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a *gozzard*, who drives them to feed and water. They are plucked five times a year, once for quills and feathers, and four times for feathers only. If the ſeaſon prove cold, many of them die by this cruel operation. Tame geeſe have been known to live for 80 years. They generally retain the white rump and vent feathers of their original ſtock. They feed on water inſects, worms, and plants; and by means of two rows of ſtrong ſharp teeth within their bills, they crop the herbage in meadows, and do much injury to young corn.

331 *Ruficollis.* *Red-breaſted gooſe.*—Black; white beneath; bill ſmall, conical; neck rufous; ſpot between the bill and eyes white. Length 21 inches; weight about three pounds. Inhabits Ruſſia and the northern parts of Siberia, but is very rarely found in England. In winter it migrates towards Perſia. It is a beautiful ſpecies, and its fleſh is in high requeſt.

332 *Segetum.* *Bean gooſe.*—Cinereous; dirty white beneath; bill compreſſed at the baſe; tail-coverts white; legs ſaffron; bill reddiſh in the middle, black at the baſe and tip; head and neck inclining to ferruginous; quill-feathers edged with black; tail with white; claws white. Meaſures from two feet and a half to three feet in length, and weighs from five to ſeven pounds. Inhabits Hudſon's bay and the Hebrides, particularly the iſle of Lewis, where it remains all ſummer and breeds. Theſe birds migrate to England in autumn, and leave it again in May, lighting, on their paſſage, on corn fields, and feeding on the green wheat. In their migration they fly at a great height, ſometimes in a ſtraight line, and ſometimes in the form of a wedge, cackling as they advance. This ſpecies is often killed, and ſold for the common wild gooſe, with which it has been long confounded.

333 *Borealis.* *Garland duck.*—Bill narrow; head green; breaſt and belly white. Inhabits the fens of Iceland, but is very rare.

334 *Erythropus.* *Bernacle gooſe.*—Aſh-coloured; front white; body waved with black and white above; neck black; belly white; bill ſhort, black, with a fleſh-coloured ſpot on each ſide, a black ſpot between the bill and eye; tail white beneath; legs blackiſh. Twenty-five inches long. Inhabits the north of Europe and Hudſon's bay, and appears in large flocks on the north-weſt coaſts of Britain during winter. They are then very wild and ſhy; but, on being taken, become quite familiar in a few days. In February they quit our ſhores, and retire as far as Lapland, Greenland, and even Spitzbergen to breed. In the darker ages this ſpecies was ſeriouſly believed to be produced from the *lepas anatifera*, a ſhell which is often found adhering by a pedicle to logs of wood that have lain long in the ſea, from which circumſtance it obtained the name of *tree-gooſe* and *clakis*.

335 *Bernicla.* *Brent*, or *brand-gooſe*.—Brown; head, neck, and breaſt, black; collar white; bill, wings, tail and legs, black; broad ſpot on each ſide of the neck; tail-coverts and vent white; belly and ſhoulders cinereous; flanks ſtreaked with white; conſiderably ſmaller than the preceding. Inhabits Europe, Aſia, and North America. Theſe birds appear on our coaſts, particularly in the weſt of England, during winter, and in Shetland are called *horra geeſe*. But they are moſt plentiful in Ireland, where they are taken in nets placed acroſs the rivers, eſpecially in thoſe which empty themſelves into the northern parts of the Iriſh channel. Sometimes they appear in vaſt flocks on the coaſt of Picardy, deſtroying all the corn near the ſea. They migrate northward in ſummer, and return ſouth in autumn, flying high in wedge-ſhaped flocks. They feed on *polygonum viviparum*, *empetrum nigrum*, and other plants, but chiefly on aquatic plants and marine vermes. They are eaſily tamed, and reckoned good for the table.

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336 *Mollissima.* *Eider*, *edder*, or *Cuthbert duck*.—Bill cylindrical; cere wrinkled, and bifid on the hind part; bill, legs, front, ocular band, breaſt, lower part of the back and belly black; middle of the head, upper part of the back, ſhoulders and wing-coverts white; a green blotch beneath the hind head. The female almoſt wholly obſcurely ferruginous, with black lines; tail and primary quill-feathers duſky. The young are not mature in plumage till the third, or perhaps the fourth year. This ſpecies is nearly double the ſize of the common duck, and about 22 inches long. It inhabits the high latitudes of Europe, Aſia, and America, and feeds chiefly on teſtaceous animals. It is rarely, if ever, ſeen in the ſouth of England, but breeds in the north of Scotland, particularly on the weſtern iſles, as alſo on the Farn iſlands, on the coaſt of Northumberland, in June and July. The neſt is made on the ground, compoſed of marine plants, and lined with down of exquiſite fineneſs which the female plucks from her own body. The eggs are uſually five, and of a greeniſh colour. In Iceland the eider ducks generally build their neſts on ſmall iſlands not far from the ſhore, and ſometimes even near the dwellings of the natives, who treat them with ſo much attention and kindneſs as to render them nearly tame. Two females will ſometimes lay their eggs in the ſame neſt, in which caſe they always agree remarkably well. As long as the female is ſitting, the male continues on watch near the ſhore, but as ſoon as the young are hatched, he leaves them. The mother, however, remains with them a conſiderable time afterwards; and it is curious to obſerve her attention in leading them out of the neſt almoſt as ſoon as they creep from the eggs. Having conducted them to the water's edge, ſhe takes them on her back and ſwims a few yards with them, when ſhe dives, and leaves them on the ſurface to take care of themſelves. They are ſeldom afterwards ſeen on land. When the natives come to the neſt, they carefully remove the female, and take away the ſuperfluous down and eggs. They then replace the mother, and ſhe begins to lay afreſh, covering the eggs with new down; and when ſhe can afford no more, the male comes to her aſſiſtance, and covers the eggs with his down, which is white. When the young ones leave the neſt, which is about an hour after they are hatched, it is once more plundered. The beſt down and moſt eggs are got during the firſt three weeks of their laying; and it has generally been obſerved that they lay the greateſt number of eggs in rainy weather. One female, during the time of laying, uſually yields half a pound of down, which, however, is reduced one half after it is cleaned. When pure, it is ſold in Lapland at the rate of two rixdollars a pound. It is extremely ſoft and warm, and ſo light and elaſtic, that a couple of handfuls, ſqueezed together, are ſufficient to fill a covering like a feather bed, which is uſed in thoſe cold countries inſtead of a common quilt or blanket. The Iceland company at Copenhagen, generally export every

Plate CCXCVI. Fig. 1.

Anſeres. year from 1500 to 2000 pounds weight of down, cleaned and uncleaned, excluſive of what is privately exported by foreigners. The Greenlanders kill theſe birds with darts, purſuing them in their little boats, watching their courſe by the air-bubbles when they dive, and always ſtriking at them when they riſe wearied to the ſurface. Their fleſh is valued as food, and their ſkins are made into warm and comfortable under garments.

337 *Moſcata.* *Muſcovy duck.*—Face naked, with red caruncles; legs and orbits naked, and with the bill red; tip of the bill and ſpace round the noſtrils black; crown black; temples, chin, and throat white, varied with black; breaſt and lower part of the belly brown, mixed with white; back and rump brown, with a green gold gloſs; upper part of the belly white; three firſt quill-feathers white, the reſt brown; tail feathers twenty, the outer white, the reſt green gold. Two feet long; native of Brazil, and is domeſticated in Europe. Has its name, not as vulgarly alleged, from the country of Muſcovy, but from the circumſtances of its ſmelling of *muſk*, which ariſes from the liquor ſecreted in the gland of the rump. Like other domeſticated fowls they are ſubject to great varieties. They are a thriving and prolific ſpecies, and not only aſſociate, but ſometimes breed with the common duck. Their fleſh is much eſteemed. Mr Pennant ſays they are met with wild about Lake Baikal in Aſia; Ray, that they are natives of Louiſiana, Marcgrave, that they reſide in Brazil, and Buffon, that they occur in the overflowed ſavannas of Guiana, where they feed in the day time on the wild rice, and return in the evening to the ſea. He adds, that they neſtle on the trunks of rotten trees, and that after the young are hatched, the mother takes them, one after another, by the bill, and throws them into the water. Great numbers of the young brood are ſaid to be deſtroyed by the alligators.

338 *Clypeata.* *Shoveler.*—Extremity of the bill dilated, rounded, with an incurved nail; bill black; irides yellow; head and neck violet green; breaſt white, and lunulated; back, wings, and wedged-tail brown; belly cheſnut; vent white; firſt and ſecond wing coverts pale blue, greater brown, tipt with white, the reſt edged with white; legs tawny. The female has a conſiderable reſemblance to the common duck, but both ſexes are very apt to vary in their colourings. This ſpecies inhabits Europe, Aſia, and North America, but is by no means common in Britain. A few remain in France during the breeding ſeaſon, making a neſt of ruſhes in which they lay 10 or 12 rufous-coloured eggs.

339 *Rubens.* *Red-breaſted ſhoveler.*—Brown; chin and breaſt cheſnut; wings tipt with gray, wing-ſpot purple, edged with white; tail ſhort, white; bill broad, browniſh yellow; head large; eyes ſmall; irides yellow; legs ſmall, ſlender, and bay. Size of a tame duck. Sometimes found in the fens of Lincolnſhire, but is rare, and little known.

340 *Merſa.* *Ural duck.*—Waved with cinereous and yellowiſh, and ſpotted with brown; brown, ſpeckled with gray beneath; throat brown-yellow, waved with black; tail long, black, wedged. Rather bigger than the common teal. Is not unfrequent in the greater lakes of the Ural mountains, and the rivers Ob and Irtiſch. Is not ſeen on the ground, being, from the ſituation of its legs, unable to walk; but it ſwims well and quickly, with the tail immerſed in the water as far as the rump, and ſerving as a rudder, contrary to the common method of a duck's ſwimming. The neſt is formed of reeds. Anſeres.

341 *Strepera.* *Gadwall*, or *gray.*—Wing-ſpot rufous, black, and white; bill flat, black; legs tawny; rump black; back brown, waved with paler; breaſt and belly gray, varied with white. Nineteen inches long. Inhabits Europe and Northern Aſia, Viſits Britain in winter, but not in great numbers. Suppoſed to breed in Sweden, and probably in Ruſſia and Siberia. It is ſaid to be a great diver, and to feed chiefly by night, concealing itſelf among the reeds and ruſhes during the day. It makes a noiſe not unlike that of the mallard, but louder. Its fleſh is ſavoury.

342 *Clangula.* *Golden eye.*—Black and white; head turned; violet; a large white ſpot at each corner of the mouth; bill black; irides golden; lower part of the neck, breaſt, and belly, white; back and rump black; legs red. The markings of the female are, head red brown; neck gray; breaſt and belly white; wing coverts varied with duſky and cinereous; middle quill-feathers white; the reſt and tail black; legs duſky. About 19 inches in length. Inhabits Europe, Aſia, and North America.

Birds of this ſpecies do not aſſemble in large flocks, nor are they numerous on the Britiſh ſhores or on the lakes in the interior. They are late in taking their departure northward in the ſpring, and in their flight they make the air whiſtle with the vigorous quick ſtrokes of their wings. They are excellent divers, and ſeldom ſet foot on ſhore; on which, it is ſaid, they walk with great apparent difficulty, and, except in the breeding ſeaſon, only repair to it for the purpoſe of taking their repoſe. They build in the hollows of trees, and prey on ſhell-fiſh, mice, fiſh, and frogs.

The *anas glaucion*, or *moſillon*, ſeems to be only a variety of the golden eye in one ſtage of its plumage, before it arrives at maturity.

343 *Glocitans.* *Bimaculated*, or *clucking duck.*—Subcreſted; brown, waved with black; head green; a ferruginous ſpot before and behind the eyes; breaſt with black ſpots; wing-ſpot green, edged with white. Length 20 inches; occurs along the Lena, and about Lake Baikal, and has been taken in a decoy in England. Has a ſingular note, ſomewhat like clucking.

344 *Penelope.* *Wigeon*, *whewer*, or *whim.*—Tail pointed; vent feathers black; head bay; front white; back waved with black and white; bill plumbeous, with a black nail; head and upper part of the neck red, with blackiſh ſpots; breaſt claret; body above waved with cinereous and blackiſh; wing-ſpot blue-green; black before and behind; wing-coverts varied brown and white; belly white; legs lead-colour. Female waved with brown; breaſt paler. Twenty inches long. Inhabits Europe, Aſia, and Africa. Viſits England in autumn, when great numbers are taken in decoys, being eſteemed an excellent food. It likewiſe frequents our rivers and ſalt-water inlets in ſmall flocks. It is remarkable for uttering a whiſtling or piping noiſe, which is frequently heard as it flies during the night. It lives on frogs, worms, inſects, and water plants, and is ſometimes domeſticated. There is a variety with a ſilvery wing-ſpot, and the throat waved with aſh-colour.

345 *Acuta.* *Pin-tail duck.*—Tail pointed, long, black beneath; hind head with a white line on each ſide; back waved with cinereous; bill black, bluiſh at the ſides; head ferruginous; throat white, a little ſpotted; body white beneath;

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neath; wings brown; wing ſpot violet, ferruginous on the fore-part, black and white on the hind-part; tail brown, edged with white, two middle feathers longer. Female leſs; wing-ſpot ſtraw-coloured, and edged with white. Inhabits Europe, Aſia, and America. Theſe birds are ſeldom numerous in England, but flocks of them are ſometimes abundantly ſpread along the iſles and ſhores of Scotland and Ireland, and on the interior lakes of both theſe countries. This ſpecies meaſures twenty-eight inches in length, and is eſteemed excellent eating.

346 *Ferruginea.*

Ferruginous duck.—Reddiſh-brown; bill dilated and rounded at the baſe; feet pale blue. Weight 20 ounces. Inhabits Denmark and Sweden, but very rarely occurs in this country.

347 *Glacialis.*

Long-tailed duck.—Tail pointed, long; body black, white beneath; bill black, orange in the middle; head on the fore-part and ſides reddiſh-gray; hind-part, breaſt, and belly, white; ſcapulars long and white; ſides of the neck with a black ſpot; lower part of the breaſt, back, wings, and tail, chocolate; four middle tail-feathers black, two middle ones longer, the reſt white; legs duſky-red, or blackiſh. The female has the tail ſhorter and wedged; the body varied with blackiſh, rufous, and gray; the back black; collar and lower part of the belly white. Of the ſize of a wigeon. Inhabits Europe, Aſia, and America, frequenting both the interior lakes and the ſea ſhores of theſe quarters of the world. The birds of this ſpecies, do not, in the winter, like many of the other tribes, entirely quit their northern haunts, but conſiderable numbers remain there, enduring the rigours of the ſeaſon, and enjoying, in ſummer, the perpetual day of an unſetting ſun. Numerous flocks, however, ſpread themſelves ſouthward in the winter, from Greenland and Hudſon's bay, as far as New York in America, and from Iceland and Spitzbergen over Lapland, the Ruſſian dominions, Sweden, Norway, and the northern parts of the Britiſh iſles in Europe. The flocks which viſit the Orkney iſles appear in October, and continue there till April. About ſunſet they are ſeen in large companies going to and returning from the bays, in which they frequently paſs the night, making ſuch a noiſe, as in froſty weather may be heard ſome miles. They are rather ſcarce in England, to which they reſort only in very hard winters, and even then in ſmall ſtraggling parties. They fly ſwiftly, but ſeldom to a great diſtance, making a loud and ſingular cry. They are expert divers, and ſuppoſed to live chiefly on ſhell-fiſh. The female makes her neſt among the graſs near the water, and, like the eider duck, lines it with the fine down of her own body. According to Latham, ſhe lays five eggs, which are of a bluiſh white colour, and about the ſize of thoſe of a pullet.

348 *Ferina.*

Pochard, or *red-headed wigeon.*—Waved with aſh-colour; head brown; pectoral band; vent and rump black; bill broad, blue, tipt with black; irides tawny; head and neck bay; breaſt and upper part of the back black; ſcapulars and inner wing-coverts undulated with black and white; belly whitiſh, with duſky lines at the ſides; legs plumbeous. Female darker; head pale reddiſh-brown; wing-coverts and belly cinereous. Nineteen inches long; weight 28 ounces. Inhabits Europe, Aſia, and America. This ſpecies is frequently caught in the decoys in England, though it is not known to breed there. In ſome counties it is called *poker*, *dunbird*, or *great-headed wigeon*. It is of a plump round ſhape, walks with a waddling and ungraceful ſtep, but flies rapidly, and in flocks of from 20 to 40, commonly in a compact body. It is much in requeſt for the table, but is not eaſily domeſticated. The male has a labyrinth, or enlargement of the trachea, near the junction with the lungs, a ſingular conformation peculiar to the male of ſeveral ſpecies of the duck tribe, but the uſe of which is ſtill unknown. In winter the pochard migrates ſouthward, as far, it is ſaid, as Egypt.

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349 *Querquedula.*

Garganey.—Wing-ſpot green; a white line above the eyes; bill lead-colour; crown duſky with oblong ſtreaks; cheeks and neck purple, with white ſtreaks; breaſt light brown, with ſemicircular black bars; belly white, lower part and vent ſpeckled; firſt quill-feathers cinereous, outer webs of the middle ones green; ſcapulars long, narrow, ſtriped with white, aſh-colour and black; tails duſky; legs lead-colour. Female, with an obſcure white mark over the eye; plumage browniſh-aſh; wings without the green ſpot. Length 17 inches. Inhabits Europe and Aſia. By ſome called *pied wigeon*, or *ſummer teal*. Frequents only the freſh waters, feeding on ſeeds and aquatic plants. Is not common in Britain, and is ſaid to be impatient of cold.

350 *Crecca.*

Teal.—Wing-ſpot green; a white line above and beneath the eyes; bill black; irides hazel; head and neck bright bay; a broad green band behind the eyes to the nape, and terminating beneath in a white line; body whitiſh, with tranſverſe blackiſh lines above; fore-part of the neck and breaſt with round black ſpots; wing-ſpot green, edged beneath with white, obliquely black above; vent black in the middle. The female is diſtinguiſhed by the head and neck varied with whitiſh and brown, and the vent totally white. There are two permanent varieties, of which the firſt has the wing-ſpot varying in colour; the body brown-aſh above, rufous-white beneath, and black ſpots on the belly. The ſecond has the cheek, chin, and under parts of the body white-rufous, and the wing-ſpot without black. Weight about 12 ounces; length 14 inches and a half. The ſmalleſt of the duck tribe, and in high requeſt at the table. Inhabits Europe and Aſia; viſits us in winter, and frequents our freſh waters in ſmall flocks. Many are caught in the decoys, and a few breed in Wolmer Foreſt, in the moraſſes about Carliſle, &c. The female makes a large neſt compoſed of ſoft dried graſſes lined with feathers, and cunningly concealed in a hole among the roots of reeds and bulruſhes, near the edge of the water. The eggs are of the ſize of thoſe of a pigeon, from ſix to ten in number, and of a dull white colour marked with ſmall browniſh ſpots. The male has a bony labyrinth in the lower part of the windpipe.

351 *Boſchas.*

Mallard, or *wild duck.*—Cinereous; middle tail-feathers (of the male) recurved; bill ſtraight; collar white; bill greeniſh-yellow; head and neck gloſſy-green; ſcapulars white, with waved brown lines; back brown; vent black-green; breaſt chcſnut; belly gray; wing-ſpot violet-green, edged above with a black and white line; two middle tail feathers dark green, and recurved. Female reddiſh-brown, ſpotted with black. Very ſubject to vary, eſpecially by domeſtication, when it is our common tame duck. About 23 inches long. Weight about two pounds and a half. Inhabits Europe, Aſia, and America; is very common in marſhy places in many

Anſeres. ny parts of this kingdom, but no where occurs in greater plenty than in Lincolnſhire, where prodigious numbers are annually taken in the decoys. In only ten decoys in the neighbourhood of Wainfleet, as many as 31,200 have been taken in one ſeaſon. There is a prohibition, by act of parliament, againſt taking them between the firſt of June and the firſt of October. They do not always build their neſt cloſe to the water, but often at a good diſtance from it, in which caſe the female will take the young in her beak, or between her legs to the water. They have ſometimes been known to lay their eggs in a high tree, in the deſerted neſt of a magpie or crow; and an inſtance has likewiſe been recorded of one found at Etchingham in Suſſex, ſitting on nine eggs in an oak, at the height of 25 feet from the ground, the eggs being ſupported by ſome ſmall twigs laid croſsways. Like many of the tribe, the mallards, in vaſt numbers quit the north at the end of autumn, and migrating ſouthward, arrive in the beginning of winter in large flocks, and ſpread themſelves over the lakes and marſhy waſtes of the Britiſh iſles. They pair in the ſpring, when the greater number of them again retire northward to breed, but many ſtraggling pairs ſtay with us; and they, as well as preceding coloniſts, remain to rear their young, which become natives, and remain with us throughout the year. The common domeſtic variety of this ſpecies aſſumes very different markings; but the male, even in its tame ſtate, retains the curling of the feathers at the tail. Habits of domeſtication, however, have deprived the tame duck of that ſprightly look and ſhape which diſtinguiſh the mallard, and have ſubſtituted a more dull and leſs elegant form and appearance in their ſtead. It is alſo deſerving of remark, that ducks pair, and are monogamous in the wild ſtate, but become polygamous when tame. The Chineſe make great uſe of ducks, but prefer the tame to the wild. We are told that moſt of them in that country are hatched by artificial heat. The eggs being laid in boxes of ſand, are placed on a brick hearth, to which is communicated a proper degree of heat during the time required for hatching. The ducklings are fed with cray-fiſh and crabs, boiled and cut ſmall, and afterwards mixed with boiled rice; and in about a fortnight they are able to ſhift for themſelves. The proprietors then provide them with an old *ſtep-mother*, who leads them where they are to find provender; being firſt put on board a boat, which is deſtined for their habitation, and from which the whole flock, amounting often to 300 or 400, go out to feed, and return at command. This method is commonly practiſed during the nine warmeſt months of the year, and eſpecially during rice harveſt, when the maſters of the duck boats row up and down according to the opportunity of procuring food, which is found in plenty at the tide of ebb, as the rice plantations are overflowed at high water. It is curious to obſerve how theſe birds obey their maſters; for ſome thouſands belonging to different boats will feed at large on the ſame ſpot, and on a ſignal given will follow their leader to their reſpective boats without a ſingle ſtranger being found among them. No fewer than 40,000 ſuch boats are ſuppoſed to ply on the Tigris. When confined to dry ſituations, ducks degenerate in ſtrength, beauty, and flavour. They feed on various animal and vegetable ſubſtances, for which they unceaſingly ſearch with their curiouſly conſtructed bills, ſifting and ſeparating every alimentary particle from the mud. When older, Anſeres. they alſo devour worms, ſpawn, water-inſects, and ſometimes frogs and ſmall fiſhes, together with the various ſeeds of bog and water plants.

352 *Black-billed whiſtling duck.*—Brown; head ſomewhat *Arborea.* creſted; belly ſpotted with white and black. Smaller than the preceding. Inhabits Guiana and Jamaica; winters in Carolina, and builds and ſits on trees.

353 *Red-creſted duck.*—Black; head and upper part of *Rufina.* the neck teſtaceous; crown reddiſh, that of the male creſted; wings beneath, and at the edges white; tail brown. Female brown, and wants the creſt. Inhabits the Caſpian ſea, and the lakes of the Tartarian deſerts; is ſometimes alſo found in Italy and Barbary.

354 *Tufted duck.*—Creſt pendent; body black; belly and *Fuligula.* wing-ſpot white; bill broad, livid, tipt with black; irides golden; head greeniſh; ſhoulders blackiſh-brown, with pale ſtraw-coloured dots; legs duſky-blue. Female browniſh, wants the creſt. Sixteen inches long. Inhabits Europe and Northern Aſia. There are ſeveral varieties. It is not uncommon with us in winter, and is frequently ſeen in our freſh waters as late as near the end of March. It is often brought to market, and ſold for wigeon. It lives not only in freſh water, but in the ſea; dives well, and feeds on ſmall fiſhes, crabs and ſhellfiſh, and likewiſe on the ſeeds of aquatic plants, particularly thoſe of the common ruſh.

Gen. 33. MERGUS.

355 Mergus.

356 Characters. Bill toothed, ſlender, cylindrical, hooked at the point; noſtrils ſmall, oval in the middle of the bill; feet four-toed, outer toe longeſt.

The birds of this genus live on fiſh, and are very deſtructive in ponds.

357 *Creſted merganſer.*—Creſt globular, white on each *Cucullatus.* ſide; body brown above, white beneath; bill and legs black; irides golden; creſt larger than the head, edged with black. Female brown; creſt leſs and ferruginous. Length ſeventeen inches and a half; weight nearly 23 ounces. An elegant ſpecies, which inhabits North America, appearing at Hudſon's bay about the end of May, and building, cloſe to the lakes, a neſt compoſed of graſs, lined with feathers from its own breaſt.

358 *Gooſander.*—A longitudinal creſt, ſomewhat erect; *Merganſer.* the breaſt white, without ſpots; the tail feathers aſh-coloured; ſhaft black; bill, legs, and irides red; greater quill-feathers black; leſſer white. Weight about four pounds; length two feet four inches. Inhabits Europe, Aſia, and America. Sometimes viſits our rivers and lakes in ſevere winters, but retires to the more northern latitudes to breed. It has been known to build on trees, but more frequently among rocks or ſtones, and lays 14 eggs, which, with the bird itſelf, are eagerly devoured by the weaſel. It ſwims with only the head above the ſurface of the water; dives deep; remains a long time below, and riſes at a conſiderable diſtance. Its fleſh is rancid and ſcarcely eatable. In queſt of fiſh, it dives with great celerity, and holds its ſlippery prey with great ſecurity by means of its toothed bill, ſo admirably adapted to the purpoſe.

359 *Dun diver*, or *ſparkling fowl.*—Creſted; cinereous; *Caſtor.* head and upper parts of the neck bay; chin, middle quill feathers, and belly white; bill and irides red; belly ſometimes fleſh-colour. Weighs about 38 ounces; meaſures

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measures 25 inches in length. Inhabits the ſame countries with the preceding, and by ſome naturaliſts is reckoned the female; but the labyrinth, or enlargement at the bottom of the windpipe, ſeems to prove it to be a male, and conſequently a diſtinct ſpecies.

360 *Serrator.* *Red-breaſted merganſer.*—Creſt pendent; breaſt reddiſh and variegated; collar white; tail-feathers brown, varied with cinereous; under part of the bill and legs red; feathers of the ſides of the breaſt large, white, edged with black, covering the fore part of the folded wings. Female with ſcarcely any creſt; head and beginning of the neck rufous. Twenty-one inches long. Inhabits the northern parts of Europe, Aſia, and America. Breeds in Greenland, Hudſon's bay, Newfoundland, Siberia, the north of Scotland, &c. Makes its neſt of withered graſs, and down torn from its own breaſt, on dry land, and lays from eight to 13 white eggs, equal in ſize to thoſe of a duck.

Plate CCCXCVI. Fig. 2.

361 *Albellus.* *Smew*, or *white nern.*—Creſt pendent; hind head black; body white; back and temples black; wings variegated; bill and legs black; wing-ſpot white; nape; oval ſpot from the bill ſurrounding the eyes, back, and two arched lines on each ſide, near the beginning of the wings, black. Female has the head ſmooth and gray; band acroſs the eyes black, and under the eyes a white ſpot; body blackiſh-brown above; white beneath; upper part of the head bay; chin white. From 15 to 17 inches long. Inhabits Europe and America. Breeds in the Arctic regions, and is driven to the ſouth only by ſevere weather.

362 *Minutus.* *Minute ſmew*, or *lough diver.*—Brown-aſh; under parts of the body and chin white; head and upper part of the neck ferruginous; wing-ſpot white before and behind. Very much reſembles the female of the preceding, but wants the black oval eye-ſpot. About 14 inches and a half long. Is rarely met with in the ſouth of England, and only in winter when the weather is ſevere. It dives with great eaſe in purſuit of fiſh, and remains long under water.

363 ALCA.

Gen. 34. ALCA, *Auk.*

364 Characters. Bill toothleſs, ſhort, compreſſed, convex, often tranſverſely furrowed; lower mandible gibbous near the baſe; noſtrils linear; legs (in moſt caſes) three-toed.

The birds of this genus are moſtly inhabitants of the Arctic ſeas; are accounted ſtupid, breed in holes, which they themſelves often dig, and in the caverns and fiſſures of rock, where they reſt during the night. In reſpect of colour, they are generally uniform, being black above, and white beneath. They are ſhaped like a duck, with their feet placed behind the centre of gravity; their bills are large, having the ſurfaces croſſed with furrows, and ending in an acute point. They lay but one egg, which is very large, conſidering the ſize of the bird.

365 *Arctica.* *Puffin.*—Bill compreſſed, two-edged with two grooves; orbits and temples white; upper eye lid daggered or furniſhed with a pointed callus; body black; cheeks, breaſt, and belly white; bill red, with a black baſe; legs red. Weighs between 12 and 13 ounces; length upwards of 12 inches. Inhabits the northern ſeas of Europe, Aſia, and America, in vaſt flocks. Appears on many parts of our rocky coaſt about the middle of April, and begins to breed about the middle of May. On the Dover cliffs, and other ſuch places, they depoſit their ſingle egg in the holes and crevices: in other places they burrow like rabbits, if the ſoil is light, but more frequently take poſſeſſion of rabbit burrows, and lay their egg ſome feet under ground. On St Margaret's iſland, off St David's, the fiſhermen put their hands into the holes, and the puffins ſeize them ſo obſtinately, that they allow themſelves to be drawn out. In other places they are caught with ferrets, and the young are taken and pickled. About the latter end of Auguſt they retire from our coaſts, and have all migrated by the beginning of September. Their principal food is ſmall fiſh, particularly ſprats, with which they feed their young.

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366 *Impennis.* *Great auk* or *penguin.*—Bill compreſſed, edged; an oval ſpot on each ſide before the eyes. Bill black, with eight or ten grooves; wings ſhort and imperfect; ſecondary quill feathers tipt with white; legs black. Three feet long. Inhabits Europe and America; occurs in the moſt northern parts of Britain, and breeds in the iſle of St Kilda, appearing about the beginning of May, and retiring about the middle of June. The ſhortneſs of its wings renders them uſeleſs for flight, but of ſingular ſervice in diving under water, where they act as fins, and thus enable it to purſue its prey with great velocity. It lays an egg ſix inches long, white and marked with purple ſpots, cloſe to the ſea mark, being incapable of flying, and almoſt of walking.

367 *Torda.* *Razorbill.*—Bill with four grooves, and a white line on each ſide as far as the eyes. Bill black; the largeſt groove white; body black above, the under parts, from the middle of the throat white; ſecondary quill feathers tipt with white; legs black. In the young bird the bill has but one groove, and, in the ſtill younger, there is no line from the bill to the eyes. Eighteen inches long. Inhabits Europe and North America. The birds of this ſpecies aſſociate with the guillemots, and alſo breed in the ſame places. About the beginning of May they take poſſeſſion of the higheſt impending rocks, for the purpoſe of incubation, and on the ledges of theſe rocks they aſſemble in great numbers, ſitting cloſely together, and often in a ſeries of notes one above another. There they depoſit their ſingle large egg on the bare rock, and notwithſtanding the multitudes of them which are thus mixed together, yet no confuſion takes place; for each bird knows her own egg, and hatches it in that ſituation. The razorbill is provincially called *auk*, *murre*, *falk*, *marrot*, and *ſcout*.

368 *Tetracula.* *Duſky auk.*—Size of the miſſel thruſh; the length 11 inches. Upper mandible of the bill bent at the point; colour yellow brown; the ridge white; irides white and ſurrounded with a black circle; forehead covered with downy feathers, which are reflexed, half one way, and half the other: behind the eyes a ſtripe of white; head and neck black; upper parts of the body black; legs livid; webs black. Inhabits Japan and Kamtſchatka. Is ſometimes ſeen at a great diſtance from land, when it is ſolitary, but on land is gregarious.

Plate CCCXCVII. Fig. 2.

369 *Pſittacula.* *Perroquet auk.*—Bill compreſſed, with a ſingle groove in each mandible; a white ſpot on the upper eyelid, between and under the eyes. Inhabits the ſea between Japan and Kamtſchatka, and often intimates approaching land to mariners.

370 *Cirrata.* *Tufted auk.*—Entirely black; bill with three tranſverſe grooves, $1\frac{1}{4}$ inch in length, ſcarlet; ſides of the head,

Plate CCCXCVII. Fig. 1.

Anſeres. head, ſpace round the eyes, and the angle of the throat white; a yellow tuft of feathers riſes from the upper eyebrow and ſtretches to the neck; legs browniſh orange; claws black; length 19 inches; female leſs; the tufts ſmaller, and the bill croſſed only with two grooves. Inhabits Kamtſchatka and the neighbouring iſlands.

371 *Alce.* *Little auk, little black and white diver, Greenland dove, ſea turtle,* &c.—Bill without furrows and conical; the whole abdomen and tips of the flag feathers white; feet black. There is a variety that is totally white, and another with a rufous breaſt. Nine inches long. Inhabits Europe and America, particularly Spitzbergen, Greenland, and Newfoundland, where they are called *ice birds*; but they are rare viſitants of the Britiſh iſles.

372 *Pygmæa.* *Pigmy auk.*—Bill carinated, depreſſed at the baſe; body black above, cinereous beneath. Seven inches long. Inhabits the iſlands between Aſia and America.

373 APTENODYTES.

Gen. 35. APTENODYTES, *Penguin.*

374 Characters. Bill ſtraight, a little compreſſed and ſharp-edged; upper mandible longitudinally and obliquely grooved, the lower truncated at the tip; tongue with reflected prickles; wings fin-ſhaped, without quill feathers; feet placed behind, four-toed, and palmated.

The birds of this genus reſemble thoſe of the preceding in colour, food, habit, and apparent ſtupidity, as alſo in the ſituation of their feet, in their erect walk, in their neſts, and in their eggs. They differ from them, however, in this, that they are all inhabitants of the South ſeas, from the equator to the Antarctic circle. They are quite incapable of flying, the feathers on their wings being ſo ſhort as to reſemble ſcales. They are fortified againſt cold by an abundance of fat; they ſwim very ſwiftly; on land they ſit erect, in a ſingular manner, and in vaſt multitudes, and they cackle like geeſe, only in a hoarſer tone. Their noſtrils are linear, and hidden in a furrow of the bill; their wings covered with a ſtrong dilated membrane, and their tail feathers very rigid.

375 *Chryſocome.* *Creſted penguin.*—Bill reddiſh brown; legs reddiſh; frontal creſt black, erect, auricular, ſulphur colour, and ſhed on each ſide; body blueiſh black, white beneath; wings white beneath. Female with a yellowiſh ſtripe on the eyebrow. Twenty three inches long. Inhabits the Falkland iſlands, and the ſouthern parts of New Holland. Called *hopping penguin* and *jumping jack*, from its action of leaping quite out of the water, for three or four feet, at leaſt, on meeting with the leaſt obſtacle. Though more lively than its congeners, it is ſo fooliſh as to allow itſelf to be knocked on the head with a ſtick, or even to be taken by the hand. When irritated, it erects its creſt in a beautiful manner. Theſe birds make their neſts among thoſe of the pelican tribe, with which they live in tolerable harmony, and ſeldom lay more than one egg, which is white, and larger than that of a duck.

376 *Patachonica.* *Patagonian penguin.*—Bill and legs black; ears with a golden ſpot; lower mandible tawny at the baſe; irides hazel; head and hind part of the neck brown; back dark blue; breaſt, belly, and vent white. Four feet three inches long. Inhabits Falkland iſlands and New Guinea. M. Bougainville caught one, which ſoon became ſo tame as to follow and know the perſon who had the care of it; at firſt it fed on fleſh, fiſh and bread, but after ſome time, grew lean, pined and died. This ſpecies is not only the largeſt, but the fatteſt of its genus; and its fleſh, though not very unpalatable, is black. Anſeres.

377 *Demerſa.* *Cape penguin.*—Bill and legs black; eyebrows and pectoral band white. Size of a large duck; length 21 inches. Inhabits the Atlantic and Antarctic ſeas, chiefly round the Cape of Good Hope. Lays two white eggs, which are reckoned delicious eating. Like all of the genus, ſwims and dives well, but hops and flutters in a ſtrange awkward manner on land, and if hurried ſtumbles perpetually, or makes uſe of its wings inſtead of legs, till it can recover its upright poſture, crying at the ſame time like a gooſe, but with a hoarſer voice. There are two or three varieties.

378 *Minor.* *Little penguin.*—Bill black; legs white. Fifteen inches long. Inhabits New Zealand. Digs deep holes in the earth, in which it lays its eggs.

379 PROCELLARIA.

Gen. 36. PROCELLARIA, *Petrel.*

380 Characters. Bill toothleſs, a little compreſſed, hooked at the point; mandibles equal; noſtrils cylindrical, tubular, truncated, lying on the baſe of the bill; feet palmated, hind claw ſeſſile, and without a toe.

The birds of this genus all frequent the deep, where they endure the greateſt ſtorms, being hardly ever ſeen on ſhore, except at breeding time. They are, however, capable of walking, and their legs are bare of feathers a little above the knee. They feed on the fat of dead whales and fiſh, and have the faculty of ſpouting oil from their noſtrils.

381 *Pacifica.* *Pacific petrel.*—Black; duſky beneath; legs ſpotted with black; bill plumbeous and much hooked; noſtrils elevated, oval, diſtinct, obliquely placed; legs pale. Twenty two inches long. Inhabits, in vaſt flocks, the iſlands of the Pacific ocean. Theſe flocks diſappear at once, dipping under water altogether, and then riſe as ſuddenly.

382 *Urinatrix.* *Diving petrel.*—Blackiſh brown; white beneath; bill and chin black; legs blue green, without the ſpur behind. Eight inches and a half long. Inhabits New Zealand in numerous flocks, and dives remarkably well, often riſing at conſiderable diſtances, with ſurpriſing agility. They croak like frogs, and ſometimes make a noiſe like the cackling of a hen.

383 *Pelagica.* Plate CCCXCVII. Fig. 3. *Stormy petrel, ſtormfinch, Mother Cary's chicken,* &c.—Black, with a white rump. This ſpecies is about the ſize of a ſwallow, and in its general appearance and flight, not unlike that bird. Length of about ſix inches. The ſtormy petrel is rarely ſeen on our ſhores, except in ſome of the northern iſlands, where it breeds in the holes of rocks, or under looſe ſtones, in the months of June and July. At all other ſeaſons it keeps far out at ſea. Multitudes of them are ſeen all over the vaſt Atlantic ocean, eſpecially before ſtormy weather. They often ſkim with incredible velocity along the hollows of the waves, and ſometimes on the ſummits, braving the utmoſt fury of the tempeſt. As they appear to run on the ſurface of the ſea, they have their name from an alluſion to *Peter's* walking on the water. The inhabitants of the Faroe iſles draw a wick through the body of this bird, which is ſo fat as to burn when lighted, and ſerve the purpoſe of a candle.—There is a variety with

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the body black; head and ſides bluiſh; ſcrag green, and wing coverts and rump ſpotted with green. Both ſorts are excellent divers, feed on ſmall fiſhes, are mute during the day, and clamorous in the night.

384 *Nivea.* *Snowy petrel.*—Snow white; ſhafts of the feathers and bill black; legs duſky blue. One foot long. Inhabits the colder parts of the Southern ſea, eſpecially in the neighbourhood of ice, the maſſes of which they often haunt in conſiderable flocks.

385 *Glacialis.* *Fulmar petrel* or *fulmar.*—Whitiſh; back hoary; bill and legs yellowiſh; noſtrils compoſed of two tubes, lodged in one ſheath. About the ſize of the common gull, and 17 inches long. Inhabits the Northern and Southern ſeas; breeds in Greenland, Spitzbergen, St Kilda, &c. laying one large white egg. It is a bold and ſtupid bird, and very fat, living on fiſh, dead whales, and other carcaſes and filth, in queſt of which it often follows ſhips for a great way. Its fleſh, though rancid, is eaten raw, dried or boiled by the Kurile iſlanders, the Greenlanders and St Kildians, and the oil when expreſſed is uſed both for food and lamps. The young are in ſeaſon about the beginning of Auguſt, when the inhabitants of St Kilda endeavour to ſurpriſe them in their neſts, to prevent them from ſpouting out their oil, which they do by way of defence. This oil is there valued as a catholicon; and every young bird yields nearly an Engliſh pint of it, which is carefully preſerved. When the thermometer is above 52 degrees, it is very pure, but at a lower temperature becomes turbid.

386 *Gigantea.* *Giant petrel*, *oſprey petrel*, or *break bones.*—Browniſh, ſpotted with white; white beneath; ſhoulders, wings and tail brown; bill and legs yellow; a naked, wrinkled, yellow membrane at the angles of the mouth. Bigger than a gooſe; length 40 inches; expanſion of the wings ſeven feet. Common in the high ſouthern latitudes, and ſometimes found, though more rare, in the Northern ſeas. Is often ſeen ſailing with the wings expanded, cloſe to the ſurface of the water, but without appearing to move them. At Chriſtmas harbour, Kerguelen's land, &c. they were ſo tame, that they ſuffered themſelves to be knocked on the head with a ſtick, by our ſailors, on the beach. Though their chief food is fiſh, they alſo feed on the carcaſes of ſeals and birds. Many of the ſailors confound them with the *albatroſs*, though ſuch of them as are better informed, call them *Mother Cary's geeſe*. They are reckoned to be very good food. An individual of this ſpecies is figured in Latham's Synopſis.

387 *Gelida.* *Glacial petrel.*—Bluiſh-aſh; back blackiſh; chin, throat and breaſt white; bill yellow; legs blue. Nineteen inches long. Inhabits the icy ſeas.

388 *Capenſis.* *Pintado*, or *pintado petrel.*—Variegated with white and brown, and ſometimes with yellowiſh and brown; bill and legs black; temples white and black. Size of the kittiwake; length 14 inches. This is the *pintado bird* of Dampier, the *white and black ſpotted peteril* of Edwards, and the *Cape pigeon* of our ſailors. It is ſeldom ſeen much to the north of 30 degrees, and is moſt frequent about the Cape of Good Hope, and the neighbouring regions. It flies in very numerous flocks, which almoſt ſweep the ſurface of the water. Our voyagers have traced them to New Zealand, Falkland iſlands, and various regions of the ſouthern hemiſphere. The ſailors often catch them with ſome tarred ſtring, or a bit of lard on a fiſhing rod. Sometimes they appear in ſuch immenſe numbers, that 700 have been taken in one night. They feed on fiſh, but more frequently on the carcaſes of whales, &c.

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389 *Puffinus.* *Shearwater petrel* or *ſhearwater.*—Black above; white beneath; legs rufous; bill yellow, tipt with black; hind head whitiſh-aſh; ſpurious wings ſpotted with black; firſt quill and tail feathers brown without and white within. Weight 17 ounces; is 15 inches long, and nearly the ſize of a pigeon. Inhabits the Southern and Arctic ſeas. Breeds in the iſle of Man, and in the Orkneys, in the former of which it is called *manks puffin*, and in the latter *lyre*. It takes poſſeſſion of a rabbit burrow or other hole, and lays one white egg; blunt at each end, which is hatched in Auguſt. Though the fleſh is rank and fiſhy, it is much reliſhed by ſome. Great numbers are killed and barrelled with ſalt. Theſe the inhabitants boil, and eat with potatoes. There is a variety that is cinereous above; white beneath, and with a clear white tail.

390 DIOMEDEA

Gen. 37. DIOMEDEA, *Albatroſs.*

391 Characters. Bill ſtraight, upper mandible hooked at the point, lower truncated; noſtrils oval, wide, prominent, lateral; tongue very ſmall; toes three, all placed forwards.

Only four ſpecies are known to belong to this genus.

392 *Exulans.* *Wandering albatroſs*, or *man of war bird.*—White; back and wings with white lines; bill pale yellow; legs fleſh-colour; quill feathers black; tail rounded, and lead coloured; bill grooved, dirty yellow; noſtrils remote from the baſe, and riſing out of the furrow; tail feathers fourteen; thighs naked. From three feet and a half to four feet long; bigger than a ſwan; weighs from twelve to twenty-eight pounds; and extends its wings from ten to thirteen feet. Inhabits moſt ſeas, but chiefly occurs within the tropics. It is frequent about the Cape of Good Hope, and towards the end of July appears in great numbers in Kamtſchatka, and the ſeas which ſeparate that part of Aſia from America. It is very voracious, feeding on the ſalmon, which are found in ſhoals, in the mouths of rivers, on the flying-fiſh, when forced out of the water by the coryphœna, and on other fiſhes, which it devours whole, and in ſuch quantities, as to be prevented by their weight from riſing, though in general it ſoars very high. It likewiſe preys on molluſca, and is itſelf attacked by the ſea-eagle, and the larus cataractes. On the ſhore of South America, it builds about the end of September, a neſt of earth on the ground, from one to three feet high, and lays a number of eggs, which are four inches and a half long, and eatable, though the white of them does not coagulate with heat. Its voice reſembles the braying of an aſs, and its fleſh is dry and hard.

Plate CCCXCVI. Fig. 5.

393 *Spadicea.* *Chocolate albatroſs.*—Bill whitiſh; body deep cheſnut-brown; belly pale; face and wings whitiſh beneath. Three feet long. Inhabits the Pacific ocean.

394 *Chlorochynchos.* *Yellow-noſed albatroſs.*—White; bill black; keel of the upper mandible and baſe of the lower yellow; body above black-blue, white beneath. Three feet long. Occurs in the Southern hemiſphere, from 30° to 60° all round the pole. Flies five or ſix feet above the water.

395 *Fuliginoſa.* *Sooty albatroſs.*—Brown; head, bill, tail, quill feathers and claws ſooty-brown; area of the eyes white. Three feet long. Inhabits the Southern ocean within the antarctic

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396 PELECANUS.

Gen. 38. PELECANUS, *Pelican*.

397 Characters. Bill ſtraight, bent at the point, and furniſhed with a nail: the noſtrils form an almoſt obliterated ſlit; face ſomewhat naked; legs balancing the body equally; the four toes connected by a membrane.

The pelicans are gregarious, fond of fiſh, and in general remarkable for their extreme voracity. For the moſt part they keep out at ſea, but ſome of them are likewiſe found in the interior parts of continents. They have all a long bill, in a lateral furrow of which lie the noſtrils. Several of the tribe are rendered uſeful to mankind by being taught to fiſh.

A. *Bill without teeth.*

398 *Onocrotalus.* *White*, or *common pelican*.—White; gullet pouched; bill from fifteen to ſixteen inches long, red; upper mandible depreſſed and broad, the lower forked; bag at the throat flaccid, membranaceous, capable of great diſtenſion; irides hazel; gape of the mouth wide; head naked at the ſides, covered with a fleſh-coloured ſkin; hind-head ſomewhat creſted; body faintly tinged with fleſh colour; ſpurious wings and firſt quill feathers black; legs lead colour. Larger than a ſwan, and about five feet long. Inhabits Aſia, Africa, and South America. In fiſhing, this bird does not immediately ſwallow its prey, but fills its bag, and returns to the ſhore to devour at leiſure the fruits of its induſtry. As it quickly digeſts its food, it has generally to fiſh more than once in the courſe of the day. At night it retires a little way on the ſhore to reſt, with its head reſting againſt its breaſt. In this attitude it remains almoſt motionleſs, till hunger calls it to break off its repoſe. It then flies from its reſting-place, and raiſing itſelf thirty or forty feet above the ſurface of the ſea, turns its head, with one eye downwards, and continues to fly in that poſture till it ſees a fiſh ſufficiently near the ſurface, when it darts down with aſtoniſhing ſwiftneſs, ſeizes it with unerring certainty, and ſtores it up in its pouch. It then riſes again, and continues the ſame manœuvres, till it has procured a competent ſtock. Clavigero informs us, that ſome of the Americans, to procure a ſupply of fiſh without any trouble, cruelly break the wing of a live pelican, and after tying the bird to a tree, conceal themſelves near the place. The ſcreams of the wounded and confined bird attract others of its kind, which eject for it a portion of proviſions from their pouches. As ſoon as the men obſerve this, they ruſh to the ſpot, and after leaving a ſmall quantity for the bird, carry off the remainder. The female feeds her young with fiſh macerated for ſome time in her bag. The pelican is ſuſceptible of domeſtication, and may even be trained to fiſh for its maſter. Faber mentions an individual of this ſpecies which was kept in the court of the duke of Bavaria above forty years, and which ſeemed to be fond of the company of mankind, and of vocal and inſtrumental muſic. When a number of pelicans and corvorants are together, they are ſaid to practice a ſingular method of taking fiſh. They ſpread into a large circle, at ſome diſtance from land; the pelicans flapping on the ſurface of the water with their extenſive wings, and the corvorants diving beneath, till the fiſh contained within the circle, are driven before them towards the land; and as the circle contracts by the birds drawing cloſer together, the fiſh at laſt are brought into a ſmall compaſs, when their purſuers find no difficulty in filling their bellies. In this exerciſe they are often attended by various ſpecies of gulls, which likewiſe obtain a ſhare of the ſpoil. The pelican generally builds in marſhy and uncultivated places, particularly in iſlands and lakes, making its neſt, which is deep, and a foot and a half in diameter, of carices, and lining it with graſs of a ſofter texture. It lays two or more white eggs, which, when perſecuted, it ſometimes hides in the water. When it builds in dry and deſert places, it brings water to its young in its bag. It walks ſlowly, flies in flocks, and lives in ſociety with other birds.

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399 *Roſeus.* *Roſe-coloured pelican*.—Roſy; gullet pouched; bill and legs black; area of the eyes naked; pouch yellow. Size of a gooſe. Inhabits Manilla.

400 *Aquilus.* *Frigate pelican*, or *frigate bird*.—Tail forked; body and orbits black; bill red; belly of the female white. Three feet long; extent of the wings fourteen feet. Inhabits within the tropics. This is the frigate bird of Dampier and other navigators. From its great expanſe of wing, it is capable of flying very ſmoothly, and ſo high as to be ſcarcely viſible, remaining much in the air, and remote from land. It feeds on fiſhes, particularly flying fiſh, on which it darts with the greateſt velocity. It not unfrequently likewiſe preys on other piſcivorous animals. It builds in trees or on rocks, and lays one or two eggs of a fleſh colour, and ſpotted with red.

401 *Minor.* *Leſſer frigate pelican*.—Tail forked; body ferruginous; bill and orbits red. Reſembles the laſt, but leſs.

402 *Carbo.* *Corvorant*.—Tail rounded; body black; head ſomewhat creſted; bill blackiſh; the baſe of the lower mandible covered with a yellowiſh ſkin, extending under the chin, and forming a pouch; irides green; chin white, ſurrounded with a yellowiſh arch; tail long and lax, conſiſting of fourteen feathers; thighs with a white ſpot, dotted with black; legs black. Three feet long; ſize of a gooſe, but more ſlender, and weighs about ſeven pounds. Inhabits Europe, Aſia, and America. Common on many of our ſea-coaſts, building its neſt on the higheſt parts of cliffs that hang over the ſea, and laying three or more pale green eggs, about the ſize of thoſe of a gooſe. In winter theſe birds diſperſe along the ſhores, and viſit the freſh waters, where they commit great depredations among the fiſh. They are remarkably voracious, and have a very quick digeſtion. Though naturally extremely ſhy and wary, they are ſtupid and eaſily taken when glutted with food. Their ſmell, when alive, is more rank and offenſive than that of any other bird, and their fleſh is ſo diſguſting, that even the Greenlanders will hardly taſte it. It is not uncommon to ſee twenty of theſe birds together, on the rocks of the ſea coaſt, with extended wings, drying themſelves in the wind. In this attitude they ſometimes remain for nearly an hour, without once cloſing their wings; and as ſoon as the latter are ſufficiently dry to enable the feathers to imbibe the oil, they preſs this liquor from the receptacle on their rumps, and dreſs the feathers with it. It is only in one particular ſtate that the oily matter can be ſpread on them, namely, when they are ſomewhat damp; and the inſtinct of the birds teaches them the proper moment. Corvorants were formerly

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403 *Graculus.* *Shag.*—Tail rounded; body black, brown beneath; tail feathers twelve; head and neck black, with a green gloſs; back and wing-coverts purple black, gloſſy at the edges; middle of the belly duſky; legs black. Weighs about four pounds. Length twenty-nine inches. The female weighs about three pounds and a quarter; and is only twenty-ſeven inches long. Inhabits the northern ſeas of Europe. Swims with its head erect, and the body under water. On perceiving the flaſh of a gun, dives inſtantaneouſly, and riſes at a conſiderable diſtance. Has the manners and habit of the preceding, and devours a prodigious quantity of fiſh. Near the Cape of Good Hope, a variety occurs with a yellow chin, and wedged tail. Another, which frequents the coaſts of Cayenne and the Carribbee iſlands, is blackiſh above, brown beneath; and has the feathers above edged with black.

404 *Pygmæus.* *Dwarf ſhag.*—Tail wedged; feathers twelve; body black, with a few ſcattered white ſpots, Female brown, without ſpots. Size of the garganey. Inhabits the Caſpian ſea.

405 *Criſtatus.* *Creſted ſhag.*—Shining green, duſky beneath; bill and legs duſky; head creſted. From two to three feet long. Inhabits the northern ſeas of Europe, occurs on our own coaſts, and both in appearance and manners, reſembles the *graculus*.

B. *Bill ſerrated.*

406 *Thagus.* *Saw-billed pelican.*—Brown; tail rounded; gullet pouched, and covered with ſhort cinereous feathers; bill one foot long; each mandible hooked; pouch very large; legs black. Size of a turkey; extent of wings nine feet. Inhabits Chili.

407 *Baſſanus.* *Gannet, or ſoland gooſe.*—Tail wedged; body white; bill and quill feathers black; face blue; irides yelloviſh; tail feathers twelve; eyes ſurrounded with a naked ſkin of fine blue; legs black, and greeniſh on the fore part. Three feet long. Weighs ſeven pounds; and inhabits Europe and America. This ſpecies of pelican haunts the Baſs iſland in the frith of Edinburgh, Ailſa, on the coaſt of Ayrſhire, the iſland of St Kilda, and hardly any where elſe in Europe. It arrives at theſe ſpots in March, and continues till September. As it muſt let itſelf fall before it takes wing, it requires a ſteep and precipitous breeding ſtation. It makes a rude neſt of ſticks, graſs, ſea-plants, &c. and lays one egg. While the female is occupied with incubation, the male brings her food, which conſiſts almoſt entirely of herrings and ſprats. In the bag under their bill they are able to fetch four or five herrings at a time, and a great number of ſprats, which the young bird extracts from the mouth of the old one, with its bill, as with pincers. The young begin to be taken in Auguſt, and by ſome are reliſhed as an exquiſite morſel; but the old ones are tough and rancid. The fowler who ſeizes the young, is let down by a rope from the top of a cliff, and is ſometimes ſtationed on the ſlippery projection of a rock, with the perpendicular precipice of four hundred feet or more beneath him. The young are of a dark-gray colour, and continue ſo for a year or more, when they gradually become white, except the tips of their wings, which are always black. In September and October the old birds leave their breeding places, and migrate ſouthward, following, as is alleged, the ſhoals of herrings. In December they are often ſeen off Liſbon plunging for ſardinæ; but after that period, it is not well known what becomes of them till March. They are common on the coaſts of Norway and Iceland, and are ſaid to be met with in great numbers about New Holland and New Zealand. They alſo breed on the coaſt of Newfoundland, and migrate ſouthward along the American ſhores as far as South Carolina. Of this ſpecies there are two varieties. The firſt is brown, ſpotted with white, and white beneath, with naked and blackiſh. The ſecond is brown, with triangular white ſpots, whitiſh, and ſpotted with brown beneath; the bill, wings, tail, and legs brown. Anſeres.

408 *Piſcator.* *Leſſer gannet.*—Tail wedged; body whitiſh; all the quill feathers black; face red. Two feet and a half long. Inhabits the Chineſe, Indian, and American ſeas.

409 *Sula.* *Booby.*—Tail wedged; body whitiſh; primary quill feathers tipt with blackiſh; face red; bill gray, browniſh at the baſe; irides pale aſh; chin bald, yelloviſh; body white beneath; tail browniſh at the tip; legs yelloviſh. Has its name from being ſo fooliſh as to alight on one's hand, if held out to it, when tired. Builds in places bare of trees, making its neſt on the ground. Its fleſh is black and rancid.

410 *Sinenſis.* *Fiſhing corvorant.*—Tail rounded; body brown, whitiſh, and ſpotted with brown beneath; throat white; bill yellow; irides blue. Inhabits China, where it is tamed for the purpoſe of catching fiſh.

411 *Parvus.* *Leſſer booby.*—Black, white beneath; face downy. Eighteen inches long. Inhabits Cayenne.

Gen. 39. PLOTUS, *Darter.* 412 PLOTUS.

413 Characters. Bill ſtraight, pointed, toothed; noſtrils an oblong ſlit near the baſe; face and chin naked; legs ſhort; all the toes connected.

The birds of this genus have a ſmall head, and long ſlender neck. They inhabit the ſouthern and warmer latitudes, and live chiefly on fiſh, which they take by darting the head forwards, while the neck is contracted like the body of a ſerpent.

414 *Anhinga.* *White-bellied darter.*—Head ſmooth; belly white. Inhabits Brazil. Two feet ten inches long. Builds on trees, and is ſcarcely ever ſeen on the ground. When at reſt, it ſits with the neck drawn in between the ſhoulders. The fleſh is oily and rancid.

415 *Melanogaſter.* *Black-bellied darter.*—Head ſmooth; belly black. About three feet long. Inhabits Ceylon, Java, &c. There are ſeveral varieties. Plate CCCXCVI.

Fig. 4. *Surinam darter.*—Head creſted; belly white. Thirteen inches long. Inhabits Surinam. Is domeſticated, and feeds on fiſh and inſects, eſpecially flies, which it catches with great dexterity.

416 *Surinamenſis.*

Gen. 40. PHAETON, *Tropic Bird.* 417 PHAETON.

418 Characters. Bill ſharp-edged, ſtraight, pointed, the gape extending beyond the bill: noſtrils oblong; hind-toe turned forwards.

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Anſeres. The ſpecies of this genus inhabit the South ſea, eſpecially between the tropics. Their bill is compreſſed, and bent a little downwards; the lower mandible angulated. The feet have four toes, which are palmated. The tail is cuneiform, and diſtinguiſhed by the great length of the two intermediate feathers.

419 *Æthereus.* Plate cccxcvi. Fig. 3. *Common tropic bird.*—White; back, rump, and leſſer wing-coverts ſtreaked with white; two middle tail feathers black at the baſe; bill red. Two feet ten inches long; ſize of a wigeon. Flies very high, and at a great diſtance from land; feeds on young ſharks, dolphins, and albicores. On land, where it is rarely ſeen except in the breeding ſeaſon, it ſits on trees, and builds on the ground, in woods. It is well known to navigators, to whom it generally announces their approach to the tropic, though this indication is by no means infallible, as the bird ſometimes wanders to the latitude of 47½°. It is ſubject to varieties. Its fleſh is indifferent.

420 *Melanorhynchos.* *Black-billed tropic bird.*—Streaked black and white, white beneath; bill black; quill feathers tipt with white; tail feathers with black. Nineteen inches and a half long. Inhabits Palmeſton and Turtle iſlands.

421 *Phœnicurus.* *Red-tailed tropic bird.*—Roſy fleſh colour; bill and two middle tail feathers red. Two feet ten inches long, of which the two middle tail feathers meaſure one foot nine inches. Builds in hollows in the ground, under trees, and lays two yellowiſh-white eggs, with rufous ſpots. Inhabits the Mauritius.

422 COLYMBUS. Gen. 41. COLYMBUS.

423 Characters. Bill toothleſs, ſubulate, ſtraight, and pointed; throat toothed; noſtrils linear, at the baſe of the bill; feet placed far behind.

The birds of this family walk on land with awkwardneſs and difficulty, but ſwim and dive with great dexterity. The guillemots chiefly inhabit the ſea; have a ſlender tongue, of the ſize of the bill. The latter is compreſſed, and covered with ſhort feathers at the baſe; the upper mandible a little bent; fleſh tough, and like the eggs, nauſeous. The divers frequent alſo the northern lakes, have a ſtrong bill, leſs pointed, cylindrical, the edge of the mandible turned in, and the upper longer than the under; the noſtrils divided in the middle by a membrane; the tongue long, ſharp, ſerrated at the baſe on each ſide; legs ſlender, a black band between the thighs; tail feathers twenty. Theſe birds are monogamous, fly with difficulty, and frequent freſh water in the breeding ſeaſon. The grebes have no tail, a ſtrong bill, lores naked, tongue a little cleft at the tip, body depreſſed, thickly covered with ſhort ſhining plumages, wings ſhort, and legs compreſſed. They are frequently found about the freſh waters of ſouthern Europe.

A. *Feet three-toed. Guillemot.*

424 *Guillemot.* 425 *Lacteolus.* *White guillemot.*—Snowy; bill and legs browniſh and fleſh-coloured. Size of the garganey. Inhabits the Netherlands.

426 *Grylle.* *Black guillemot, ſpotted guillemot, Greenland dove, ſea turtle, &c.*—Body black; wing-coverts white. But theſe general markings are incident to great variety. The more ſpecial characteriſtics are; bill black, inſide of the mouth and legs red; upper wing-coverts in the middle, and lower part of the belly white. Weighs fourteen ounces, and meaſures nearly the ſame number of inches in length. Inhabits Europe and America. Frequents the Faroe iſlands, the Baſs, St Kilda, &c. viſiting theſe places in March, making its neſt far under ground, and laying one egg of a dirty white, blotched with pale ruſt-colour. Except at breeding time, it keeps always at ſea, lives on fiſh, flies low, and generally, in pairs. It cannot without much difficulty, riſe from the ground. In the Orkney iſlands, it is called *tyſte*. The Greenlanders eat its fleſh, and uſe its ſkin for cloathing, and its legs as a bait to their fiſhing lines.

427 *Minor.* *Leſſer guillemot.*—Black, with a narrow ſtripe acroſs the wings, cheeks and under parts white. Weight eighteen or nineteen ounces; length about ſixteen inches. Inhabits the northern ſeas of Europe, and in winter frequents the frith of Forth in vaſt flocks; where it feeds on ſprats, and is called *marrot*, or *morrot*. Many doubts have been entertained with regard to this bird, Dr Latham and other ornithologiſts having conſidered it as the young of the ſucceeding ſpecies. It is to be obſerved, however, that beſides the difference in ſize and plumage, this bird is rarely met with in the ſouth till the month of November, whence it has been called the *winter guillemot*, whereas the other ſpecies always leaves us before September, and does not again appear till the enſuing ſpring; and that its young, when they depart, are exactly like the old ones.

428 *Troile.* *Fooliſh guillemot* or *ſcout.*—Body black; breaſt and belly ſnowy; ſecondary quill feathers tipt with white; bill black; inſide of the mouth yellow; legs and tail blackiſh. Seventeen inches long. Inhabits the northern ſeas of Europe, Aſia, and America. This ſpecies is likewiſe called *marrot* in Scotland, and *lavie* in St Kilda. In that iſland it appears about the beginning of February, and is hailed by the inhabitants as the harbinger of plenty. A St Kilda man deſcends in the night, by the help of a rope, to the ledge of a precipice, where he fixes himſelf, and tying round him a piece of white linen, awaits the arrival of the bird, which, miſtaking the cloth for a piece of the rock, alights on it, and is immediately diſpatched. In this way 400 are ſometimes taken in one night, and at dawn the fowler is drawn up. The fooliſh guillemot lays but one egg, which is very large, unprotected by any neſt, and has ſuch a ſlender hold of the rock, that when the birds are ſurpriſed, and fly off ſuddenly, many of them tumble down into the ſea. Theſe birds ſeldom quit their eggs unleſs diſturbed, but are fed with ſprats and other ſmall fiſh by the male. In places where they are ſeldom moleſted, it is with difficulty they are put to flight, and may ſometimes be taken with the hand; others flutter into the water, appearing not to have much uſe of their wings.

429 *Diver.* B. *Four-toed, and palmated. Diver.*

430 *Septentrionatis.* *Red-throated diver* or *loon.*—A ferruginous ſhield-like ſpot beneath the neck; body brown, with minute white ſpots above, white beneath; bill black; head and chin cinereous, ſpotted with brown; neck with ſmall white and brown lines above; legs duſky. Weighs about three pounds. Length near two feet and a half. Inhabits the north of Europe, Aſia, and America, and is ſeldom ſeen far ſouthward, except in very ſevere winters. In the breeding ſeaſon it frequents the lakes, making a neſt among the reeds and flags, and lays two eggs of an aſh colour, marked with a few black ſpots. In Iceland

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Anſeres. it is ſaid to make its neſt of moſs and graſs, lined with down, among the graſs of the ſhores contiguous to the waters. It breeds in the north of Scotland, but is ſeldom obſerved in the ſouth of England. It lives on marine vermes, crabs, and the ſmaller fiſhes, with which it is ſometimes taken in nets. It ſwims and flies ſwiftly; and when it ſcreams in its flight is ſaid to preſage a ſtorm.

431 *Arcticus.* *Black-throated diver.*—Head hoary; neck violet black beneath, with an interrupted white band; bill black; body black above, white beneath; ſides of the neck white, ſpotted with black; ſhoulders and wing-coverts with white ſpots, the former ſquare, the latter round; quill feathers duſky. Two feet long. Inhabits the northern parts of Europe, Aſia, and America, frequenting both the ſea and lakes. Before rain, it is reſtleſs and clamorous; occurs in Scotland, but is not common in England.

432 *Stellatus.* *Speckled diver* or *loon.*—White beneath; hind-head and quill feathers duſky; throat pale-aſh; back, flanks, rump, and tail ſpotted with white; bill horn colour; legs brown. The weight of this ſpecies is about four pounds, and the length 27 inches. It inhabits the north of Europe and America, and is among the moſt common of the diver tribe found in this country, being frequently ſeen in winter, in our bays and inlets, and ſometimes in freſh water rivers and lakes. From its attending the ſprats in the Thames, it is called *ſprat-loon* by the fiſhermen. In the northern regions it lays two eggs, the ſize of thoſe of a gooſe, duſky, and with a few black ſpots, in the graſs, on the borders of lakes.

433 *Glacialis.* *Northern diver* or *greateſt ſpeckled diver.*—Head and neck purpliſh-black; chin and upper part of the neck with a white interrupted band; upper part of the body, bill, legs, and tail black; back with ſquare white ſpots diſpoſed in rows; wing-coverts with white dots. The largeſt of the genus ſometimes weighing fifteen or ſixteen pounds; and meaſuring nearly three feet and a half in length. Inhabits the north ſeas, and breeds in the freſh waters, in Iceland, Greenland, &c. Frequents the ſeas about the Orkneys, all the year round, without breeding there. The ſkin, which is tough, and well covered with ſoft down, is dreſſed in ſome parts of Ruſſia, &c. and uſed as cloathing.

434 *Immer.* *Immer*, *imber*, or *ember gooſe*, or *diver.*—Body blackiſh and waved with white above, white beneath; feathers of the back, wings, and tail edged with white. Two feet long. Inhabits the Arctic ocean, and alſo, it is ſaid, the lake of Conſtance, where it is called *ſluder*. Unleſs in ſevere winters, it is rare in England, but is more common on the Scottiſh and Orkney coaſts. It makes its neſt on the water, among reeds and flags. It feeds on fiſh, after which it dives with great celerity, and is ſometimes taken under water, by a baited hook.

435 *Grebe.*

C. *Feet four-toed, lobed. Grebe.*

436 *Criſtatus.* *Creſted grebe, gray*, or *aſh-coloured loon*, &c.—Head rufous; collar black; ſecondary quill feathers white; bill fleſh-coloured, brown at the tip; lores and irides red; body brown above, white beneath; head tumid, and varies in colour by age. During the firſt year, this bird has a ſmooth head, and a white ſpot on the wings; and during the ſecond, a long downy tuft on each ſide of the throat. This is the largeſt of the grebes, weighing about two pounds and a half, and meaſuring twenty-one inches in length. It occurs in almoſt every lake in the northern parts of Europe, as far as Iceland, and ſouthward to the Mediterranean, and is alſo found in various parts of America and Siberia. It is common in the fens and lakes in various parts of England, where it breeds. The female makes her neſt of various kinds of dried fibres, ſtalks and leaves of water plants, as of the nymphæa, potamogeton, hottonia, &c. and the roots of menyanthes trifoliata, and conceals it among the flags and reeds which grow in the water, and where it is erroneouſly ſaid to float. The young are fed on ſmall eels. In ſome countries, ladies muffs and other ornamental articles of dreſs are made of the ſkin of the belly of this ſpecies, which has a fine down of a dazzling whiteneſs. It requires five ſkins to make a muff which ſells at four or five guineas. The tippet grebe is the female or young of this ſpecies. Anſeres.

437 *Auritus.* *Eared grebe* or *dobchick.*—Blackiſh-brown above, white beneath; head black; ears creſted, and ferruginous; bill and legs black; irides and lores red; primary quill feathers duſky, ſecondary white. There is a ſmaller varicty, with a double creſt, and the neck ſpotted with cheſnut. This ſpecies is about twelve inches long, and inhabits the northern lakes of Europe and Siberia. It is alſo met with in ſouthern climates, but is not numerous in England. According to Pennant, it breeds in the fens near Spalding in Lincolnſhire, and the female makes a neſt not unlike that of the preceding, laying four or five ſmall white eggs. Plate cccxcvi. Fig. 4.

438 *Cornutus.* *Horned grebe.*—Head gloſſy-green; a yellow tufted band through the eyes; neck and breaſt tawny. Size of the preceding. Inhabits North America.

439 *Minor.* *Little grebe* or *ſmall dipper.*—Of a reddiſh-brown above, white, with ſpots beneath; head ſmooth; feathers of the body edged with reddiſh; lower part of the belly gray; upper wing-coverts, and firſt and laſt quill feathers blackiſh, reſt of the quill feathers white; bill blackiſh; baſe of the lower mandible reddiſh; legs blackiſh-green. Inhabits Europe, North America, the Philippine iſles, and the Delta in Egypt. The leaſt of the grebe tribe, weighing only between ſix and ſeven ounces, and meaſuring from the tip of the bill to the rump, ten inches. It ſeldom quits the water, and is a remarkable diver, feeding on fiſh, inſects, and aquatic plants; conſtructing a large neſt, a foot thick, of graſs and the ſtalks of aquatic plants, in the midſt of the waters which pervade it, and laying five or ſix whitiſh eggs, which it covers when it leaves the neſt. In ſeveral parts of this country it is called *didapper*.

440 *Rubricollis.* *Red-necked grebe.*—Subcreſted, brown; chin, cheeks, and region of the ears cinereous; under part of the neck and breaſt ruſty-red; belly, and ſecondary quill feathers white; bill black, the ſides tawny at the baſe; irides tawny; legs duſky. Seventeen inches long; and weighs nearly nineteen ounces. Inhabits Europe, but is very rare in Britain.

441 *Obſcurus.* *Duſky grebe* or *black and white dobchick.*—Head ſmooth; body dark brown above; front, under parts of the body, and tips of the ſecondary quill feathers, white. Eleven inches long. Inhabits Europe and America. Breeds in the fens of Lincolnſhire, and is found, in the winter, in our inlets on the coaſt, particularly in Devonſhire, where it is by no means uncommon.

442 *Hebridicus.* *Black-chin grebe.*—Head ſmooth; body blackiſh; chin black; throat ferruginous; belly cinereous, mixed with

Anſeres. with ſilvery. Somewhat larger than the little grebe. Inhabits Tiree, one of the Hebrides.

443 LARUS. Gen. 42. LARUS, *Gull.*

444 Characters. Bill ſtraight, ſharp-edged, a little hooked at the tip, and without teeth; lower mandible gibbous below the point; noſtrils linear, broadeſt on the fore part, and placed in the middle of the bill.

The birds of this genus have a light ſmooth body; long wings; a ſtrong bill; the tongue ſomewhat cleft; the feet ſhort; bare of feathers above the knee; with a ſmall back toe. They inhabit the north; feed chiefly on fiſhes, and even on thoſe that are dead. When haraſſed, they throw up or diſcharge their food. As the young are ſometimes ſpotted to their third year, the extrication of the ſpecies is attended with doubt and difficulty.

A. *Noſtrils without a cere.*

445 *Tridactylus.* *Tarrock* or *kittiwake.*—Whitiſh; the back grayiſh; tips of the tail feathers, except the outermoſt, black; three toes. In maturer age, the characters are; back whitiſh-hoary; quill feathers white; hind toe unarmed. Ornithologiſts, in fact, ſeem now to be agreed, that *L. tridactylus* and *L. riſſa*, are only varieties of the ſame ſpecies. A third variety occurs, diſtinguiſhed by an oblique black bland on the wings, and white chin. About the ſize of a pigeon; about fourteen inches long. Inhabits Europe, Aſia, and America. Breeds on the cliffs about Flamboroughhead, the Baſs, iſle of May, the rocks near Slains Caſtle, &c.; lays two eggs; feeds on fiſhes, and ſeeks its food in company of ſeals and whales. It ſwims and flies rapidly, and is often clamorous. Its fleſh is much reliſhed by the Greenlanders, who alſo make clothing of its ſkin. One that was kept and tamed, knew its maſter's voice at a diſtance, and anſwered him with its hoarſe piping note. It had a voracious appetite, and though plentifully fed on bread, would rob the poultry of their ſharc.

446 *Minutus.* *Little gull.*—Snowy; head and beginning of the neck black; back and wings ruſſet; bill brown-red; legs ſcarlet. Size of a thruſh. Inhabits Ruſſia and Siberia.

447 *Canus.* *Common gull.*—White; back hoary; primary quill feathers black at the ends, the fourth and fifth with a black ſpot at the tip, the outer one black without; bill yellow; irides hazel; legs greeniſh white. A variety is met with that has the head ſpotted with brown; neck brown above, and tail feathers white, with a black band. This is generally ſuppoſed to be the younger bird. Inhabits Europe and America. Seventeen inches long; of the ſize of a pigeon; and is ſeen in numerous flocks, continually ſcreaming. Lives on fiſhes, vermes, and the larvæ of inſects; builds among rocks and ſtones, and is a fooliſh bird. The moſt common and numerous of all the Britiſh gulls, breeding on rocky cliffs, and laying two eggs, nearly the ſize of thoſe of a common hen, of an olive brown colour, marked with dark-reddiſh blotches. At the mouths of the larger rivers they are ſeen in numbers, picking up the animal ſubſtances which are caſt on ſhore, or come floating down with the ebbing tide. For this kind of food they watch with a quick eye, and it is curious to obſerve how ſuch as are near the breakers will mount up the ſurface of the water, and run ſplaſhing towards the ſummit of the wave to catch the object of their purſuit. At particular ſeaſons, this ſpecies alſo reſorts to the inland parts of the country, to feed on worms, &c. Some perſons who live near the ſea, commonly eat this, as well as various other kinds of gulls, which they deſcribe as being good food, when they have undergone a certain ſweetening proceſs before cooking; ſuch as burying them in freſh mould for a day, or waſhing them in vinegar. This ſpecies breeds on the ledges of rocks, cloſe to the ſea-ſhore, ſometimes not far above the water. This bird is frequently ſeen in winter, at a conſiderable diſtance from the coaſt. It flocks with rooks in ſevere weather, and will follow the plough for the ſake of the larvæ of the chaffer. Anſeres.

448 *Marinus.* *Black-backed gull* or *great black and white gull.*—White; back black; bill yellow; lower mandible with a red ſpot near the tip and black in the middle; irides yellow; lower part of the back white; quill feathers black, tipt with white; legs fleſh-coloured. The markings, however, vary conſiderably with the age of the bird. The weight of this ſpecies is four pounds and three quarters; and the length near thirty inches. It inhabits Europe and America. Though not very plentiful on our coaſts, it is occaſionally ſeen in ſmall flocks of eight or ten, ſometimes in pairs, but never aſſociating with the other gulls. It cackles like a gooſe, lives chiefly on fiſh, but alſo infeſts the eider duck, and even lambs. It has been known to tear and devour the largeſt fiſh on the hooks, when left dry by the ebbing tide. It breeds on the ſteep holmes, and Lundy iſland, in the Briſtol channel, makes a neſt in the clefts of the higheſt rocks, and lays three eggs of a blackiſh-gray colour, with dark purple ſpots; and eatable. Its ſkin is uſed for clothing by the Eſkimaux and Greenlanders; and the young not only affords a fine down, but an article of food.

449 *Fuſcus.* *Herring gull.*—White; back brown; legs yellow; bill yellow; irides ſtraw-coloured; five firſt quill feathers black above. Weight about thirty-three ounces; length twenty-three inches. Inhabits Europe, Aſia, and North America, proceeding ſouthward in winter as far as the Black and Caſpian ſeas, Jamaica, and the iſlands on the ſhore of South Carolina. It lives on fiſh, eſpecially herrings, which it ſeizes with great boldneſs, and the ſhoals of which it accompanies in flocks. It is ſometimes obſerved to trample the ſoft ſand, by moving its feet alternately in the ſame place, for the purpoſe, it is ſuppoſed, of forcing up ſand-eels, or ſome hidden prey. This ſpecies is very common on the Britiſh ſhores; makes its neſt of dry graſs on the projecting ledges of the rocks, and lays three eggs of a dull whitiſh colour, ſpotted with black. Fiſhermen deſcribe it as the conſtant, bold, and intruding attendant on their nets, from which they find it difficult to drive it away.

450 *Atricilla.* *Black-headed gull.*—Whitiſh; head blackiſh; bill red; legs black. Eighteen inches long. Inhabits Europe and America. Flies about the ſhores in flocks, with a continual clamour; and builds in pine-trees.

451 *Ridibundus.* *Laughing* or *black-headed gull.*—Whitiſh; head blackiſh; bill and legs pale red. Eyelids red; irides hazel; head and chin duſky-brown; and in the full-grown bird, black; firſt ten quill feathers white-edged, and tipt with black, the reſt cinereous, tipt with white; claws black. This ſpecies has its name from its ſingular cry, which reſembles a hoarſe laugh. It is fifteen inches long; inhabits Europe, America, and the Bahama iſlands; and breeds in the pools and fens of England, making its neſt on the ground, with ruſhes, dried graſs, &c. and laying three greeniſh-brown eggs, ſpotted with tawny.

Anſeres. tawny. "In former times, (ſays Mr Bewick), theſe birds were looked upon as valuable property by the owners of ſome of the fens and marſhes in this kingdom, who every autumn cauſed the little iſlets or hafts in thoſe waſtes, to be cleared of the reeds and ruſhes, in order properly to prepare the ſpots for the reception of the old birds in the ſpring, to which places at that ſeaſon they regularly returned in great flocks to breed. The young ones were then highly eſteemed as excellent eating; and on that account were caught in great numbers before they were able to fly. Six or ſeven men, equipped for this buſineſs, waded through the pools, and with long ſtaves drove them to the land, againſt nets placed upon the ſhores of theſe hafts, where they were eaſily caught by the hand, and put into pens ready prepared for their reception. The gentry aſſembled from all parts to ſee the ſport."——"Theſe were the *ſee-gulles* of which we read as being ſo plentifully provided at the great feaſts of the ancient nobility and biſhops of this realm. Although the fleſh of theſe birds is not now eſteemed a dainty, and they are ſeldom ſought after as an article of food, yet in the breeding ſeaſon, where accommodation and protection are afforded them, they ſtill regularly reſort to the ſame old haunts, which have been occupied by their kind for a long time paſt."

B. *Noſtrils covered with a cere.*

452 *Paraſiticus.* *Arctic gull*,—Two middle-tail feathers very long; bill and legs duſky; body black above; temples, front, and under parts of the body white; breaſt with a duſky band. Female brown beneath; twenty-one inches long. Inhabits Europe, Aſia, and America. Breeds in the Hebrides and Orkneys, among the heath, making its neſt of graſs and moſs, in ſome marſhy place, and laying two eggs, the ſize of thoſe of a hen, aſh-coloured and ſpotted with black. It is very rapacious, and purſues the leſſer gulls, not for their dung, as ſome have aſſerted, but to make them diſgorge what they have lately eaten, which it dexterouſly catches and devours before it reaches the water. It is to be remarked, that all this tribe are voracious, and if chaſed by a hawk, or other bird that creates alarm, readily diſgorge, in order to lighten themſelves, and thus eſcape by flight. It is no uncommon thing to ſee them bring up a large quantity of half digeſted food, when ſlightly wounded by ſhot; and tamed gulls will do the ſame, if driven by a dog. It may alſo be obſerved, that gulls float highly on the ſurface of the water by reaſon of the quantity of feathers in proportion to their weight, and ſeem to be incapable of diving. If they ſhould be wounded ever ſo ſlightly, and fall into the water, they never attempt to dive like other aquatic birds.

453. *Crepidatus.* *Black-toed gull*.—Varied with dirty white and brown, paler beneath; two middle tail feathers a little longer; bill black; breaſt and belly white, with numerous duſky and yelloviſh lines; flanks and vent tranſverſely black and white; wing-coverts and tail black edged with white or broviniſh; legs bluiſh; toes and connecting membrane black. Weight about eleven ounces; length fifteen or ſixteen inches. Inhabits Europe and America, but is not common on the Britiſh ſhores. Its habits nearly coincide with thoſe of the preceding ſpecies. Its excrement is ſaid to be red, from the circumſtance of its feeding on the *helix janthina*.

454 *Catarractes.* *Skua gull*.—Grayiſh; quill and tail feathers white at the baſe; tail nearly equal; bill duſky, much hooked, upper mandible covered half way with a black cere; body brown above, ruſty-aſh beneath; legs blackiſh, rough, warty; claws hooked, black; hind-toe ſhort, with a ſharp-hooked claw; two feet long. Inhabits Europe and America. Theſe fierce birds are met with by navigators in the high latitudes of both hemiſpheres, where they are much more common than in the warm or temperate parts of the globe. They are often mentioned in Captain Cooke's Voyages, and, from their being numerous about Falkland iſlands, the ſeamen call them *Port Egmont hens*. They are alſo common in Norway, Iceland, the Shetland and Faroe iſles, &c. They prey not only on fiſh, but alſo on the leſſer ſorts of water fowl, and are ſo courageous in defence of their own young, that they attack either man or beaſt, that dares to diſturb their neſt. They make their neſts among the dry graſs, and, when the young are reared, they diſperſe themſelves commonly in pairs over the ocean. In the iſland of Foula, in Shetland, the ſkua gull is called *bonxie*, and is a privileged bird, there being a fine of 10l. Scotch for deſtroying its eggs, becauſe it keeps off the eagle during the whole breeding ſeaſon.

Anſeres.

Gen. 43. STERNA, *Tern*. 455 STERNA.

Bill ſubulate, ſomewhat ſtraight, pointed, a little compreſſed, without teeth; noſtrils linear; tongue pointed; wings very long; tail generally forked. 456 Characters.

The birds of this genus are moſtly inhabitants of the ocean, and feed on fiſhes. They are ſeldom afraid of man.

Sooty tern.—Black above; upper parts of the body, cheeks, front and ſhafts of the quill and tail feathers white; ſixteen inches long. Inhabits the Atlantic and Antarctic ſeas 457 *Fuliginoſa.*

458 *Stolida.* *Noddy*.—Body black; front whitiſh; eye-brows black; bill and legs blacks; hind-head cinereous; fifteen inches long; found chiefly within the tropics; is clamorous, ſeldom goes far from ſhore, and always reſts there during the night. It builds on the rocks, and its eggs are reckoned excellent food.

459 *Cantiaca.* *Sandwich tern*.—White; back and wings hoary; cap black; front with white ſpots; quill feathers blackiſh, with a white ſhaft; bill black, yelloviſh at the tip; legs black; wings longer than the tail; egg olive-brown, with purpliſh and crowded ſpots; eighteen inches long. Inhabits the Kentiſh coaſt, generally appearing about Romney, in the middle of April, and departing in the beginning of September. It is not uncommon about Sandwich, where it was firſt particularly noticed by Mr Boys. The circumſtance of its breeding in England has not been perfectly aſcertained. The *hævia* of ſome authors, or the *Kamtſchatkan tern* of Pennant, appears to be only a variety, which is black, with paler colours above; white beneath; and bill and legs black.

460 *Hirundo.* *Common*, or *greater tern*.—Two outer tail feathers half black, and half white; bill and legs crimſon; the former tipt with black; crown and area of the eyes black; reſt of the head, neck, tail, and body, white beneath; back and wings cinereous; outer tail feathers black on the outer edge. There is a variety with black legs, and the outer tail feathers entirely white. The weight of this ſpecies is about four ounces and a quarter; and

Anſeres.

and its length fourteen inches. Inhabits Europe, Aſia, and America. It frequents our flat, ſandy, or ſhingly ſhores, and lays three or four eggs, of the ſize of a pigeon's, of an olivacious brown, and ſpotted and blotched with duſky, among ſtones, without making any neſt. It is noiſy and reſtleſs, conſtantly on wing, in ſearch of inſects and ſmall fiſh; in purſuit of which it darts into the water with great force, ſeizes its prey, and inſtantly returns; for, though web-footed, it is not obſerved to ſwim or dive. It is commonly known by the name of the *ſea ſwallow*, and, in ſome parts, by that of the *gull teaſer*, from its perſecuting the ſmaller gulls, and obliging them to diſgorge. In New England it is called *mackarel gull*, and at Hudſon's bay it is known by the name of *black-head*. The young birds are mottled with brown and white, and are, moſt probably, the *brown tern* deſcribed by Ray and other ornithologiſts.

461 *Alba.* *White tern.*—White; bill and legs black; length between two and three inches. Inhabits the Cape of Good Hope.

462 *Nigra.* *Black-headed tern.*—Body hoary; head and bill black; legs red; ſize of the preceding. Inhabits Europe.

463 *Minuta.* Plate CCCXCVII Fig. 5. *Leſſer tern.*—Body white; back hoary; front and eye-brows white; bill yellow, tipt with black; irides brown; cap black; a black band through the eyes; legs yellow; eight inches and a half long. Inhabits Europe and America. It has the habits of the common ſpecies, but is far leſs numerous. It lays two eggs, of a very pale brown, ſpotted all over with cinereous and duſky, and placed in a ſmall depreſſion among the ſhingle, without any neſt.

464 *Fiſſipes.* *Black tern.*—Body black; back aſh-coloured; belly white; feet red; bill black; male with a white ſpot on the chin; wings and tail cinereous; vent and lower tail coverts white; length ten inches. Inhabits Europe and America, and has all the actions and manners of the other ſpecies, but ſeems to prefer freſh-water inſects and fiſh to marine. It feeds on the verge of pools, in ſwampy places, and often remote from the ſea. In the fenny parts of Lincolnſhire and Cambridgeſhire it is called *car-ſwallow*. Though very plentiful about the reedy pools of the Romney marſhes, it keeps to the edges of the ſtagnant water, and is rarely ſeen on the adjoining ſea ſhore, till after the breeding ſeaſon, and even then not very commonly. It lays three or four eggs about the ſize of thoſe of a magpie, of an olive brown colour, blotched and ſpotted with brown and black.

465 Rynchops.

Gen. 44. Rynchops, *Skimmer.*

466 Characters. Bill ſtraight; upper mandible ſhorter than the under, the latter truncated at the apex; tail forked and ſhorter than the wings; noſtrils linear, and the back toe ſmall.

467 *Nigra.* *Black ſkimmer*, or *cut-water*.—Blackiſh; white beneath; bill red at the baſe; the lower mandible grooved; front and chin white; wings with a tranſverſe white band; two middle tail feathers black, the next edged with white; legs red; twenty inches long. Inhabits Aſia and America. This bird is ever on the wing, ſweeping the ſurface of the water, dipping in its bill, or at leaſt the under mandible, to ſcoop out the ſmaller fiſhes on which it feeds. In ſtormy weather it frequents the ſhores, and is contented with oyſters and other ſhell-fiſh.

Grallæ.

Order IV. GRALLÆ.

468 Grallæ. 469 Characters. Bill ſubcylindrical, and ſomewhat obtuſe; tongue entire and fleſhy; legs naked above the knees; the feet are commonly furniſhed with four toes, of which three ſtand forwards, and one backwards, ſometimes wholly unconnected, and at other times half connected by a web. Some ſpecies, too, have only three toes; their legs are long, that they may ſeek their food in marſhy and ſwampy places, for which reaſon they have alſo a long neck, and, for the moſt part, a long bill. Their bodies are oval, and ſomewhat compreſſed, and their tail is generally ſhort. They build chiefly on the ground and in marſhy places, and feed principally on fiſhes and water inſects. They are all more or leſs migratory, and ſuch as inhabit the more northern countries of Europe, univerſally leave them at the approach of winter.

470 Phæni-copteros. 471 Characters.

Gen. 45. Phænicopteros, *Flamingo.*

Bill bare; toothed and bent as if broken; noſtrils linear; the feet four-toed and palmated, the membranes ſemicircular on the fore part; hind toe not connected.

The birds of this genus combine the anſeres with the grallæ. They have the neck and legs long; the bill ſtrong and thick, the upper mandible carinated above, and denticulated at the margin, the under one compreſſed and tranſverſely ſulcated; the noſtrils above covered with a thin membrane, and communicating with each other; the back-toe very ſmall, and the web which connects the fore-toes, reaching to the nails.

472 *Ruber.* Plate CCCXCVIII. Fig. 1. *Red flamingo.*—Flag feather black. This ſingular bird is ſcarcely ſo big as a gooſe, but has the neck and legs in a greater diſproportion to the body than any other bird; the length from the end of the bill to that of the tail being four feet, and two or three inches; but, to the end of the claws, ſometimes more than ſix feet; the bill is four inches and a quarter long, and of a ſtructure different from that of any other bird, the upper mandible being very thin and flat, and ſomewhat moveable, the under thick and both bending downwards from the middle; the end, as far as the curvature, is black, and the reſt reddiſh-yellow; a fleſh-coloured cere extends round the baſe of the bill to the eye; the neck is ſlender and of an immoderate length; the tongue, which is large and fleſhy, fills the cavity of the bill, has a ſharp cartilaginous tip, and is furniſhed with twelve or more hooked papillæ on each ſide, which bend backwards. The bird, when in full plumage, which it does not acquire till the third year, is of a moſt beautiful deep ſcarlet, except the quills, which are black. The flamingo affects the warmer latitudes; and, in the old continent, is not often met with beyond the 40th degree north or ſouth. It is met with every where on the African coaſt and adjacent iſles to the Cape of Good Hope, and ſometimes on the coaſts of Spain and Italy, and even on thoſe of France that lie on the Mediterranean, having been found at Marſeilles and for ſome way up the Rhone. It is ſeen alſo on the Perſian ſide of the Caſpian ſea, and from thence along the weſtern coaſt as far as the Wolga. They breed in the Cape de Verd iſles, particularly in that of Sal, conſtructing a neſt

Grallæ. of mud in the ſhape of a hillock, with a cavity at top, in which the female generally lays two white eggs, of the ſize of thoſe of a gooſe, but more elongated. The hillock is of a ſufficient height to admit the bird's ſitting on it conveniently, or rather ſtanding, as the legs are placed one on each ſide at full length. Sometimes the female will depoſit her eggs on the projecting part of a low rock, if otherwiſe adapted to the above-mentioned attitude. The young are not able to fly till they are grown, but they can previouſly run with amazing ſwiftneſs. In this immature ſtate, they are ſometimes caught and eaſily tamed. In five or ſix days, they become familiar, and even eat out of the hand, and drink a great quantity of ſea water. It is, however, difficult to rear them, as they are very liable to pine from want of their natural ſubſiſtence, which chiefly conſiſts of ſmall fiſh and water inſects. Theſe they take by plunging the bill and part of the head into the water, and from time to time trampling the bottom with their feet, to diſturb the mud, and raiſe up their prey. In feeding they are ſaid to twiſt the neck in ſuch a manner, that the upper part of their bill is applied to the ground. Except in the breeding ſeaſon, flamingos are generally obſerved in great flocks, and at a diſtance appear like a regiment of ſoldiers, being often ranged alongſide of one another on the borders of rivers. When the Europeans firſt viſited America, they found theſe birds on the ſhores tame and gentle, and no way diſtruſtful of mankind. We learn from Cateſby, that when the fowler had killed one, the reſt of the flock, inſtead of attempting to fly, only regarded the fall of their companion in a kind of fixed aſtoniſhment; ſo that the whole flock were ſometimes killed in detail, without one of them attempting to make its eſcape. They are now, however, extremely ſhy, and one of their number acts as ſentinel, while the reſt are feeding. The moment that this guard perceives the leaſt danger, he gives a loud ſcream, like the ſound of a trumpet, and inſtantly all are on the wing, and fill the air with their ſcreams. The flamingo, when at reſt, ſtands on one leg, the other being drawn up to the body, with the head placed under the wing on that ſide of the body on which it ſtands. Its fleſh is eſteemed tolerable eating, and that of the young has been compared to partridge. Pliny, Martial, and other writers of antiquity, have celebrated the tongue as a morſel of exquiſite reliſh.

473 *Chilenſis.* *Chili flamingo.*—Quill feathers white; bill covered with a reddiſh ſkin; head ſubcreſted; meaſures five feet from the bill to the claws. Inhabits Chili; frequents only freſh waters, and is extremely ſhy.

474 PLATALEA. 475 Character.

Gen. 46. PLATALEA, *Spoonbill.*

Bill long and thin, the tip dilated, orbicular and flat; noſtrils ſmall at the baſe of the bill; tongue ſhort and pointed; feet four-toed and ſemipalmated.

476 *Leucorodia.* *White ſpoonbill.*—Body white; chin black; hind head ſomewhat creſted. Bill black, brown or ſpotted; tongue heart-ſhaped; irides gray; lores, orbits, and naked dilatable chin black; quill feathers ſometimes tipt with black; legs black. This ſpecies admits of two varieties, of which the firſt has the wings varied with black and white, and the legs yellowiſh, and the ſecond has the body all white, and the legs fleſh coloured. The white or common ſpoonbill weighs about three pounds and a half, and meaſures two feet eight inches in length. It inhabits from the Feroe iles to the Cape of Good Hope; but rarely occurs in England. It lives on graſs, carices, the roots of reeds, ſerpents, frogs, muſcles, and other ſhell-fiſh, but eſpecially on fiſhes, which it often ſeizes from other birds. It makes its neſt in high trees, near to the ſea, and lays three or four white eggs, ſprinkled with a few pale red ſpots. The fleſh, eſpecially of the young bird, taſtes like that of gooſe. Grallæ.

477 *Ajaja.* *Roſeate ſpoonbill.*—Body roſe-coloured; tail coverts ſcarlet; bill cinereous white, with a furrow parallel with the edge; face and chin naked and whitiſh; legs gray. This ſpecies alſo frequently appears of a blood red hue; the neck white; collar black; and tail feathers ſcarlet. Two feet three inches long. Inhabits South America and Jamaica. Figured in Latham's Synopſis.

478 *Pygmæa.* *Dwarf ſpoonbill.*—Body brown above; white beneath. Size of a ſparrow. Inhabits Guiana and Surinam.

479 PALAMEDEA. 480 Characters.

Gen. 47. PALAMEDEA, *Screamer.*

Bill conical, the upper mandible hooked, noſtrils oval; feet four-toed, cleft, a very ſmall membrane connecting the toes at the root.

481 *Cornuta.* *Horned ſcreamer.*—Wings with two ſpines at the curvature, front horned; bill and legs black; irides golden; body blackiſh above, white beneath; wings reddiſh beneath; ſpines ſtrong, ſharp, horny, triangular, yellow; horn on the front recurved, round, whitiſh; three inches long; hind toe ſtraight. Three feet four inches long. Inhabits the fenny parts of South America; making a large neſt of mud, in the ſhape of an oven, on the ground, and laying two eggs the ſize of thoſe of a gooſe. It is remarked, that they are always met with in pairs, and if one dies, the other mourns to death for the loſs. On hearing the leaſt noiſe, or ſeeing any one, even at a diſtance, they riſe from the ground and make a loud ſcreaming noiſe. They feed principally on herbs, ſeeds, and reptiles. The fleſh of the old bird is tough and ill taſted; but that of the young, though very dark, is frequently eaten by the natives.

482 *Criſtata.* *Creſted ſcreamer.*—Wings unarmed; front creſted. Size of a heron. Inhabits Brazil.

483 MYCTERIA. 484 Characters.

Gen. 48. MYCTERIA, *Jabiru.*

Bill a little bending upwards and ſharp-pointed; upper mandible triangular; front bald; noſtrils linear; tongue ſmall or wanting; feet four-toed and cleft.

485 *Americana.* *American jabiru.*—White; quill and tail feathers purpliſh-black; bill long, ſtout and black; head and neck bald, two thirds of the neck blackiſh, the reſt red; hind head cinereous; legs long, ſtout and blackiſh. Nearly ſix feet long. Inhabits the ſavannas of South America; is migratory and gregarious, makes its neſt in large trees, lays two eggs, and tends the young till they can deſcend to the ground. The colour of the young birds is gray; the ſecond year it changes to roſe colour, and the third to pure white. They are very wild and voracious, and deſtroy great quantities of fiſh. The fleſh of the young birds is ſaid to be good eating, but that of the old is hard and oily.

486 *Aſiatica.* *Indian jabiru.*—White; band over the eyes, lower part of the back, quill and tail feathers black; bill blackiſh;

blackiſh; upper mandible gibbous at the baſe; lower tumid beneath; legs fleſh-coloured. Inhabits India, and feeds on ſhell-fiſh.

486 *Novæ Hollandiæ.* *New Holland jabiru.*—Body purpliſh-green above, under parts, neck and ſhoulders white; head purpliſh, ſpotted with white; neck feathered; irides yellow; firſt quill feathers white; tail black and white. Full ſix feet long; is ſuppoſed to live chiefly on fiſh. Inhabits New Holland. Figured in Latham's Supplement.

Gen. 49. CANCROMA, *Boatbill.*

488 CANCROMA. 489 Characters. Bill gibbous, and ſhaped like an inverted boat; noſtrils ſmall, and placed in a furrow; tongue ſmall; toes divided.

490 *Cochlearia.* *Creſted boatbill.*—Creſted; cinereous; belly rufous; crown and lemule on the neck black; bill brown; lores naked and blackiſh; creſt long, pendulous and pointed; legs yelloviſh-brown; toes connected at the baſe. The body is ſometimes ſpotted with brown. Twenty-two inches long. Inhabits South America; perches on trees which overhang the water, and darts down on the fiſh as they ſwim underneath. It likewiſe feeds on crabs.

Gen. 50. SCOPUS, *Umbre.*

491 SCOPUS. 492 Characters. Bill thick, compreſſed, long and ſtraight; noſtrils linear and oblique; feet with four unconnected toes.

493 *Umbretta.* Plate CCCXCVIII. Fig. 4. *Tufted umbre.*—With a creſt; bill brown, with a longitudinal furrow on each ſide, in which are placed the noſtrils; lower mandible narrower towards the end, and a little truncated; creſt thick, tufted and lax; body brown; tail obſcurely barred; legs longiſh and brown. Female not creſted. Twenty inches long. Inhabits Africa.

Gen. 51. ARDEA.

494 ARDEA. 495 Characters. Bill ſtraight, pointed, long, ſomewhat compreſſed, with a furrow from the noſtrils towards the tip; noſtrils linear; tongue ſharp; feet four-toed, cleft; toes connected at the baſe.

The birds of this numerous genus have long feet and necks, and live on amphibious animals and fiſhes.

A. *Creſted, and bill ſcarcely longer than the head.*

496 *Pavonia.* *Crowned heron* or *crown bird.*—Creſt briſtly and erect; temples with two naked wattles; bill browniſh; irides gray; crown covered with ſhort ſilky feathers; creſt circular, yelloviſh, tipt with black; temples and wattles red; body bluiſh aſh; wing coverts white, the greater ones reddiſh, thoſe next the body blackiſh; tail and greater quill feathers black, the ſecondary bay; legs duſky. The female is black, where the male is bluiſh-aſh, has no wattels on the throat, and the long feathers on the breaſt leſs conſpicuous. This beautiful ſpecies, the *balearic crane* of Ray, and the *crowned African crane* of Edwards, is two feet nine inches long; and inhabits Africa, particularly the coaſt of Guinea, as far as the cape de Verd iſlands. At the latter it is ſaid to be very tame, and ſo familiar as to come into the court-yards to feed with the poultry. It is ſuppoſed to feed chiefly on worms and vegetables, often ſleeps on one leg, runs very faſt, and not only flies well, but continues on wing for a long time together. The fleſh is ſaid to be very tough.

497 *Virgo.* *Demoiſelle heron, demoiſelle of Numidia*, or *Numidian crane.*—A tuft of long, white, pendant feathers behind each eye; bill yelloviſh; the baſe greeniſh, tip red; irides red; head and tips of the primary quill feathers black; feathers of the breaſt long and pendulous; creſt over the eyes turned back, and pendulous; body bluiſh-aſh; crown cinereous; head, neck, throat, breaſt and legs black. The wind-pipe does not, as in the generality of birds, go ſtraight forwards into the lungs, but firſt enters a cavity in the keel of the breaſt bone, for about three inches, when it returns, after making a bend forwards, and then paſſes into the cheſt. This elegant ſpecies is about the ſize of the common crane; and three feet three inches long. It is found in many parts of Africa and Aſia, but moſt plentifully about *Bildulgeria*, the ancient Numidia, and Tripoli. It alſo occurs at Aleppo, and in the ſouthern plain, about the Black and Caſpian ſeas, and not unfrequently beyond Lake Baikal, about the rivers Selenga and Argun, but never ventures to the northward. It affects marſhes and rivers, ſubſiſting chiefly on fiſh. In the Crimea it builds its neſt in open plains, generally in the vicinity of the ſalt lakes. The young birds are brought to market by the Tartars, and are ſo ſuſceptible of domeſtication, that they even afterwards breed in the farm yards. From the gentleneſs of its manners and the elegance of its form, it is often kept in menageries. In confinement, it often aſſumes ſtrange and uncouth attitudes, and ſeems occaſionally to imitate dancing; and Keyſler mentions one in the gallery at Florence, which had been taught to dance to a certain tune, when played or ſung to it.

B. *Cranes; head bald.*

498 *Cranes.* 499 *Grus.* *Common crane.*—Hind head naked and papillous; cap and quill feathers black; body cinereous; innermoſt tail feathers jagged; bill greeniſh-black; front covered with black down; hind head red, with a few ſcattered hairs, and a cinereous area beneath; temples and upper neck white; legs black. There is a variety with the body white; and the lower part of the neck and quill feathers black; bill greeniſh black; front covered with black down; hind head red, with a few ſcattered hairs, and a cinereous area beneath; temples and upper neck white; legs black. Weighs near 10 pounds; length five feet. Inhabits Europe and Aſia, and annually migrates in flocks to the ſouthern parts of Aſia and Africa, in autumn. The courſe of their flight is diſcovered by the loud noiſe which they make; for they ſoar to ſuch a height as to be ſcarcely viſible to the naked eye. Like the wild geeſe, they form themſelves into different figures, deſcribing a wedge, a triangle, or a circle. It is ſaid that formerly they viſited the fens and marſhes of England, in great numbers; but they ſeem now, in a great meaſure, to have forſaken our iſland. They are ſeen in France in the ſpring and autumn; but generally only as paſſengers. They make their neſts in marſhes, and lay two bluiſh eggs. They feed on reptiles of all kinds, and on ſeveral ſorts of vegetables, particularly green corn; among which, if a flock alights, it makes great havock. Like other large birds, the crane has much difficulty in commencing its flight.

500 *Gigantea.* *Siberian crane.*—White; temples and front naked, red, wrinkled; ten firſt quill feathers ſhining black; bill and legs red. Stands four feet and a half high. Inhabits the marſhy flats of Siberia, and feeds on reptiles, worms, and ſmall fiſh.

C. *Storks;*

Grallæ.

C. *Storks; orbits naked.*

401 *Storks.*

502 *Ciconia.*

White ſtork.—White; orbits and quill feathers black; bill, legs and ſkin red; greater wing coverts black. Inhabits Europe, Aſia, and Africa. Is about the ſize of a turkey; and meaſures three feet three inches in length. Feeds on fiſh and reptiles, and in ſeveral countries is protected for its uſe in deſtroying ſerpents. Vaſt numbers annually reſort to ſome parts of Holland, and even as far north as Ruſſia, to breed, but rarely viſit England. They obſerve great exactneſs in the time of their autumnal departure from Europe to more favoured climes. They paſs a ſecond ſummer in Egypt, and the marſhes of Barbary; pairing in the former country, and rearing a ſecond brood. Before each of their migrations, they rendezvous in amazing numbers, and are for a while much in motion among themſelves, till, after making ſeveral ſhort excurſions, as if to try their wings, they all on a ſudden take flight with great ſilence, and with ſuch ſpeed as in a moment to be out of ſight. At Bagdad, hundreds of their neſts are to be ſeen about the houſes, walls and trees; and at Perſepolis, the remains of the pillars ſerve them to build on, every pillar having a neſt on it. Shaw mentions flights of them leaving Egypt, and paſſing over Mount Carmel, each half a mile in breadth. The good-natured Hollanders provide boxes for them to build their neſts in, on the tops of their houſes, and reſent any injury done to the birds as an offence committed againſt themſelves. The ſtork is of a mild and affectionate diſpoſition; and though it has a grave air, yet, when rouſed by example, is not averſe from gaiety. "I ſaw", ſays Dr Hermann, "in a garden where children were playing at hide and ſeek, a tame ſtork join the party, run its turn when touched, and diſtinguiſh the child whoſe turn it was to purſue the reſt, ſo well, as, along with the others, to be on its guard".—To this bird the ancients aſcribed many of the moral virtues, as temperance, vigilance, conjugal fidelity, and filial and parental piety.

503 *Nigra.*

Black ſtork.—Brown; breaſt and belly white. Two feet nine inches long. Inhabits Europe and Aſia. Feeds on fiſh and reptiles; is timid, and retires into thick woods and inacceſſible fens.

504 *Herons.*

505 *Dubia.*

D. *Herons; middle claw inwardly ſerrated.*

Gigantic heron.—Glaucous above; dirty white beneath; bill a little triangular. This is a large ſpecies, meaſuring from tip to tip of the wings, nearly 15 feet. The bill is of an enormous ſize, and 16 inches round at the baſe. The head and neck are naked, except a few ſtraggling curled hairs. The feathers of the back and wings are of a bluiſh-aſh colour, and very ſtout; thoſe of the breaſt long. The craw hangs down the fore part of the neck, like a pouch, thinly covered with down. The belly is covered with a dirty white down, and the upper part of the back and ſhoulders ſurrounded with the ſame. The legs and about half of the thighs are naked, and the naked parts are full three feet in length. The gigantic heron inhabits Bengal, and is ſometimes found on the coaſt of Guinea. It arrives in the interior parts of Bengal before the period of the rains, and retires as ſoon as the dry ſeaſon commences. Though its aſpect is far from inviting, it is one of the moſt uſeful birds of thoſe countries, in clearing them of ſnakes and noxious reptiles and inſects. They ſometimes feed on fiſh; and one of them will generally devour as much as would ſerve four men. On opening the body of an individual of this ſpecies, a land tortoiſe, 10 inches long, and a large black cat, were found entire within it, the former in the pouch, and the latter in its ſtomach. Being undaunted at the ſight of mankind, they are ſoon rendered familiar; and when fiſh or other food is thrown to them they catch it very nimbly, and immediately ſwallow it entire. A young bird of this kind, about five feet in height, was brought up tame, and preſented to the chief of the Bananas, where Mr Smeathman lived. It regularly attended the hall at dinner time, placing itſelf behind its maſter's chair, frequently before any of the gueſts entered. The ſervants were obliged to watch it carefully, and to defend the proviſions by beating it off with ſticks: yet notwithſtanding every precaution, it would frequently ſnatch off ſomething from the table, and one day purloined a whole boiled fowl, which it ſwallowed in an inſtant. It uſed to fly about the iſland, and rooſt very high among the ſilk cotton trees; from this ſtation, at the diſtance of two or three miles, it could ſee when the dinner was carried acroſs the court; when darting down, it would arrive early enough to enter with ſome of thoſe who carried in the diſhes. When ſitting, it was obſerved always to reſt itſelf on the whole length of the hind part of the leg. Sometimes it would ſtand in the room for half an hour after dinner, turning its head alternately as if liſtening to the converſation. Theſe birds are found in companies, and, when ſeen at a diſtance, near the mouths of rivers, advancing towards an obſerver, it is ſaid that they may be eaſily miſtaken for canoes on the ſurface of a ſmooth ſea, and when on the ſand banks, for men and women picking up ſhell-fiſh on the beach.—From their immenſe gape, they have obtained the name of *large throats*, and from their ſwallowing bones, that of *bone eaters* or *bone takers*.

Grallæ.

506 *Nycticorax.*

Night heron.—Creſt on the hind head white, horizontal, of three feathers; back black; belly yellowiſh. The female has the head ſmooth and brown; belly browniſh and white beneath; and the firſt quill feathers with a white ſpot at the tip. About 20 inches long. Inhabits Europe, Aſia, and America. Only one inſtance occurs of its having been met with in England. It is pretty common in Ruſſia, particularly on the Don, where it builds in trees, and is alſo met with at Aſtracan during ſummer. It is ſaid to lay three or four white eggs, and ſometimes to build among the rocks. It has a very uncouth and rough voice, like that of a perſon ſtraining to vomit.

507 *Purpurea.*

Creſted purple heron.—Hind head black; creſt pendent, and compoſed of two long feathers; body olive above, purpliſh beneath. Two feet 10 inches long. Inhabits Aſia.

508 *Caſpica.*

African heron.—Creſted; body cinereous; neck breaſt and belly ferruginous; chin white; neck with three black lines; bill and legs yellow; creſt of three long feathers; feathers of the breaſt and rump mixed with ferruginous; a broad black line from the nape to the back, and another on each of the ſides. About three feet long; and ſmaller than the common heron. Inhabits Aſia and Africa, and has been twice found in England.

509 *Major.*

Common heron.—Hind head with a pendent creſt; body aſh-coloured; line on the neck beneath and pectoral bar black. The female has the hind head ſmooth and

Grallæ. and black; back bluiſh and whitiſh beneath; and the breaſt with oblong black ſpots. Bill duſky; baſe yellowiſh beneath; area of the eyes naked and greeniſh; irides yellow; temples black; front, crown and neck white above; ſpurious wings and greater quill feathers black; ſcapulars and feathers of the throat long, lax, and narrow; body white beneath; legs dirty green. The weight of this ſpecies is about three pounds and a half; and the length about three feet four inches. Inhabits almoſt every where in fenny places, and is common in England. It is a great deſtroyer both of ſea and freſh-water fiſh, being enabled, by the great length of its legs, to wade into ſome depth of water, where it ſtands motionleſs, till ſome of the finny tribe approach, when it darts its bill into them in an inſtant. Its digeſtion being as quick as its appetite is voracious, it commits great devaſtation in ponds and ſhallow waters. It will likewiſe eat frogs and vegetables. They are frequently obſerved to feed by moon light, when the fiſh come into the ſhoaler waters. In the breeding ſeaſon, herons are gregarious, and make their neſts very near one another. Pennant mentions having ſeen eighty neſts on one tree, and Mr Montagu once ſaw a heronry on a ſmall iſland in a lake, in the north of Scotland, on which there was but a ſingle ſcrubby oak, which not being ſufficient to contain all the neſts, many were placed on the ground. The neſt is large and flat, made of ſticks lined with wool and other ſoft materials. The eggs are four or five in number, of a greeniſh-blue, and about the ſize of thoſe of a duck. Heronries were much prized in the days of falconry, and ſome are yet to be ſeen in ſeveral parts of the kingdom. In flying, this ſpecies hides its head between its ſhoulders, and its legs hang down. When it flies very high, it preſages a ſtorm. If taken young, theſe birds may be tamed: but when the old birds are captured, they ſoon pine away, refuſing every kind of nouriſhment. The body is very ſmall and always lean, and the ſkin is ſcarcely thicker than membrane uſed by the gold beaters. Linnæus had made the two ſexes diſtinct ſpecies, and others were long of the ſame opinion: but later obſervations have corrected the miſtake.

510 *Gazetta.* *Egret* or *little egret*.—Hind head creſted; body white; bill black; lores and legs greeniſh; irides yellowiſh; creſt conſiſting of ſome ſhort, and two long feathers; face naked and green; claws black. Nearly a foot long, and weighs one pound. Inhabits marſhy places, in temperate regions, in the four quarters of the world. If we may judge from the bill of fare of the famous feaſt given by the archbiſhop Nevil, theſe birds were formerly plentiful in England; for no fewer than 1000 were in that liſt. It is, however, now become a very rare bird in this kingdom. Its plumes were formerly uſed to decorate the helmets of warriors, but are now applied to ornament the head dreſſes of European ladies, and the turbans of the Perſians and Turks. Its habits are analogous to thoſe of the common heron.

511 *Egretta* Plate CCCXCVIII. Fig. 3. *Great egret*.—Somewhat creſted, white; legs black; feathers of the back and breaſt lax, narrow and very long. About two feet long. Inhabits South America. Is ſhy and ſolitary, lying hid among the tall reeds, and feeding by night.

512 *Herodias.* *Great heron*.—Hind head creſted; body brown; thighs rufous; breaſt with oblong black ſpots. Above five feet long. Inhabits the lakes and rivers of Virginia, and feeds on lizards, frogs, and fiſh.

Blue heron.—Hind head creſted; body blue; bill and lores blue; legs green. In the female, the head and neck are duſky purple; the chin and middle of the throat white, and the back lead colour. There is a ſubcreſted variety blue green, with the chin and throat white. Another is varied with brown, yellow and cinereous; ſteel black above; white beneath; and wings and tail greeniſh. From 16 to 18 inches long. Inhabits America. Found in Carolina in ſpring, and in Jamaica, and other iſlands of the Weſt Indies, in winter. It has alſo been met with at Otaheite, and other iſlands of the South ſeas, where it is much reſpected. Grallæ. 513 *Cærulea.*

514 *Comata.* *Squacco heron*.—Ferruginous; white beneath; hind head with a long white pendent creſt, edged with black. About 15 inches long. Inhabits Europe and Aſia. A white variety, with a ſmooth head, the upper part, crown, breaſt and back reddiſh, and which inhabits Coromandel, has been once ſhot in England

515 *Stellaris.* *Bittern*; in provincial Engliſh, *bittour*, *bumpy coſs*, *butter bump* and *miredram*.—Head ſmoothiſh; body teſtaceous above, with tranſverſe ſpots; paler beneath, with oblong brown ſpots. About two feet and a half long. Inhabits Europe, Aſia, and America, affecting the more temperate regions in winter, and migrating northwards in ſummer. Though not a plentiful ſpecies in Britain, it is occaſionally found in the breeding ſeaſon, in the leſs frequented reedy marſhes, and ſwampy moors, well clothed with ruſhes, where it forms a neſt on ſome ſtump, by collecting ſedges or other coarſe plants together. It lays four or five eggs of a light olive green colour, inclining to cinereous. At this ſeaſon the male makes a ſingular bellowing noiſe, vulgarly ſuppoſed to be produced by the bird putting his bill into a reed. It is with difficulty roufed from its lurking place, flies heavily, and frequently lights again at a ſmall diſtance, ſo that it becomes an eaſy prey to the ſportſman. About ſunſet, it ſometimes ſoars to a great height in the air, with a ſpiral aſcent, making at the ſame time, a loud and ſingular noiſe. Its fleſh is accounted a delicacy.

516 *Botaurus.* *Greater bittern*.—Head ſmoothiſh, black; body cinereous brown above; rufous beneath; lores and naked orbits yellow; throat white, ſtreaked with black and reddiſh. Three feet nine inches long. Inhabits Italy.

517 *Alba.* *Great white heron*.—Head ſmooth; body white; bill tawny; legs black; bill ſix inches long; irides yellowiſh; lores green. Three feet ſix inches long. Inhabits Europe, Aſia, and America. Is rare in England.

518 *Caruncula-ta.* *Wattled heron*.—Back, wings, legs and crown black-blue; ſmooth head and neck white; body black beneath; bill and chin carunculated. Five feet long. Inhabits Africa.

519 *Exilis.* *Minute bittern*.—Smooth head and upper part of the body reddiſh-bay; white beneath; ſides of the neck rufous; wings and tail black. Twelve inches and a half long. Inhabits Jamaica.

520 *Minuta.* *Little bittern*.—(Male). Head ſmooth; body brown; reddiſh beneath; tail feathers greeniſh-black; lores yellowiſh. (Female). Body brown; edges of the feathers reddiſh; reddiſh beneath; crown, back, wings and tail black; bill yellow-green; naked part of the face yellow; irides ſaffron; legs green brown. This beautiful ſpecies is ſcarcely larger than a fieldfare, and about 15 inches long, from the tip of the bill to the end of the tail. The female lays four or five white eggs, of the ſize of thoſe of the blackbird, and which are placed on

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Grallæ. a few dried flags on the ground. Inhabits Europe and Asia, but is rare in England.

E. *Bill gaping in the middle.*

521 *Pondiceriana* — *Pondicherry heron.*—Gray-ash; quill feathers long and black; middle claw not serrated; bill yellow, thick at the base, pointed at the tip, and a little bent in, gaping in the middle; space between the bill and eyes feathered; legs yellow. Fourteen inches and a half long. Inhabits India.

522 *Coromandelian.* — *Coromandel heron.*—White; back, wings and tail black; upper mandible serrated from the middle to the tip; bill yellow, thick at the base, and pointed at the tip; legs reddish-yellow; upper part of the head with black lines; lores and chin naked and black; irides red; toes connected at the base. Inhabits Coromandel, and feeds on fish and reptiles.

523 *Scolopacea.* — *Scolopaceous heron.*—Brown; throat and breast streaked with white; chin and legs white; wings and tail copper-colour. Twenty five inches long. Inhabits Cayenne.

524 TANTALUS.

Gen. 52. TANTALUS, *Ibis*.

525 Characters. Bill long, subulated, roundish, somewhat arched; face naked; tongue short and broad; jugular pouch naked; nostrils oval; feet four-toed and palmated at the base.

526 *Loculator.* — *Wood ibis.*—Face bluish; bill reddish; legs, quill and tail feathers black; body white; bill nine inches long, yellowish-brown; irides reddish. The male has the head and neck naked, wrinkled and black-blue; and the female has the neck gray and downy. Three feet long. Inhabits New Holland and the warmer parts of America. Is stupid and slow in flight, sitting on trees, and feeding on herbs, seeds, fruits, fish, and reptiles. The flesh is good. Of this species there are two varieties, the first having the head and neck white, blended with yellow; the body black, and belly cinereous, and the second distinguished by white wing coverts, with a black blotch in the middle.

527 *Igneus.* — *Glossy ibis.*—Head and neck black; legs green; body varied with glossy-blue, blackish, green and claret; dark rufous beneath; quill and tail feathers green-gold; bill green. Thirteen inches and a half long. Inhabits Russia, and was once shot in Cornwall.

528 *Niger.* — *Black ibis.*—Face, bill and legs red; body black. From 30 to 40 inches long. Inhabits Egypt.

529 *Ibis.* — *Egyptian ibis.*—Face red; bill pale yellow; quill feathers black; body reddish-white. This is a large bird, somewhat exceeding the stork, and measures from 30 to 40 inches in length. The bill is seven inches long, the colour yellow, growing reddish towards the tip, slightly curved, and ending in a blunt point. The fore part of the head, all round as far as the eyes, is naked and reddish. The skin under the throat, is also bare and dilatable; the plumage reddish white, most inclining to red on the back and wings; quills and tail black; the legs long; and the thighs bare for three parts of their length. Hasselquist adds, that the irides are whitish, and the end of the bill and the legs black; and that it is found in Lower Egypt, in great plenty, in places just freed from the inundations of the Nile. It lives on frogs and insects, and is seen in gardens morning and evening, and sometimes so abundantly, that whole palm trees are covered with them. When at rest they fit quite erect, their tail touching their legs. The same author believes it to be the ibis of the ancients; first, because it is common in, and peculiar to Egypt; secondly, as it eats serpents; and, thirdly, because the urns, which contain the remains of embalmed birds, found in the sepulchres along with the mummies, seem to contain birds of this size. Its figure represented Egypt, in the hieroglyphic writing of its inhabitants. In that country it is still called *Pharaoh's bird*, and builds in the palm trees. Grallæ.

530 *Ruber.* — *Scarlet ibis.*—Face, bill and legs red; body scarlet; wings tipt with black. Twenty-one inches long. Inhabits South America. Sits on trees, but lays its greenish eggs on the ground. The young are at first black, then gray, whitish just before they fly, and afterwards grow gradually red.

531 *Albus.* — *White ibis.*—This species is 22 inches long, and about the size of the whimbrel; the face, bill and feet reddish; body white; tips of the wings green; the male and female nearly alike. Native of Brazil, but towards the end of summer migrates to the north, and is found in great numbers in the marshy lands of Carolina, feeding on fish and aquatic insects. Here they remain for about six weeks: the fat and flesh of the white ibis are said to be of a saffron colour, but though not much esteemed, is sometimes eaten. Plate CCCXCVIII. Fig. 2.

532 CORRIRA.

Gen. 53. CORRIRA, *Courier*.

533 Characters. Bill short, straight, toothless; thighs longer than the body; feet four-toed, palmated; hind toe unconnected.

534 *Italica.* — *Italian courier.*—Ferruginous above; white beneath; two middle tail feathers white, tipt with black; bill pale yellow, black at the end, with a large gap; irides a double circle of bay and white. Less than the curlew. Inhabits Italy, and runs swiftly.

535 SCOLOPAX.

Gen. 54. SCOLOPAX.

536 Characters. Bill roundish, obtuse, and longer than the head; nostrils linear; face covered with feathers; feet four-toed; hind toe consisting of many joints.

The birds of this and of the succeeding genus are with difficulty ascertained, being subject to differ in appearance from sex and age, and their colours shading into one another. The markings of their feet, however, are pretty constant, and therefore afford one of the best criteria.

537 *Pygmæa.* — *Pigmy curlew.*—Arched bill, and legs black; body varied with ferruginous, brown, and white; white beneath; rump white; quill and outer tail feathers edged with white. Size of a lark. Inhabits Europe, and is very rare in England.

538 *Arquata.* — *Common curlew.*—Bill arched, blackish; legs bluish; wings blackish, with snowy spots; lower mandible reddish at the base; body above, and breast streaked with dusky brown; chin, rump, belly, and vent, white; quill feathers black, spotted with white within; legs bluish; toes flat and broad. This species is subject to vary considerably in size, weighing from 20 to upwards of 30 ounces; the length of the largest being about 25 inches. Inhabits the moist and fenny places of Europe, Asia, and Africa. A rufous and black variety, with a smaller body, and longer bill, occurs in America. The curlew

Grallæ. curlew is common on moſt of our coaſts, in winter, when it is gregarious, and feeds on ſmall crabs, and other marine inſects and worms. In the ſpring it retires inland, and commonly to the more northern parts of the kingdom, to breed, reſorting to the moſt retired ſituations on the heath-covered mountains, or in extenſive and unfrequented marſhes. It makes no neſt; but depoſits among the heath, ruſhes, or long graſs, four eggs, of a pale olive colour, marked with browniſh ſpots. The young make uſe of their legs as ſoon as they are hatched, but cannot fly for a conſiderable time. The fleſh of this ſpecies is eatable, but is beſt in ſummer, when the bird feeds on frogs, worms, and water inſects. In winter it is rank and fiſhy.

539 *Phæopus.* *Whimbrel.*—Bill arched, and black; legs bluiſh; back with rhomboid brown ſpots; rump white; lower mandible reddiſh at the baſe; body above, and breaſt browniſh, with duſky brown ſtreaks; chin, rump, belly, and vent, white; tail brown, with duſky bars; quill feathers black, ſpotted with white on the inſide. About half the ſize of the preceding; but agreeing with it in appearance and habits. It is alſo more ſcarce in this country.

540 *Nigra.* *Black ſnipe.*—Bill and legs red; body black. Inhabits the iſlands between Northern Aſia and America.

541 *Nutans.* *Nodding ſnipe.*—Bill black; legs greeniſh; body cinereous; crown and upper part of the back duſky red, and ſtreaked; the lower white, ſpotted with black. Size of the common ſnipe. Inhabits Labrador, and is conſtantly nodding the head.

542 *Ruſticola.* *Woodcock.*—Bill ſtraight, reddiſh at the baſe; legs cinereous; thighs covered; head, with a black band on each ſide; upper mandible longer, reddiſh at the baſe; front cinereous; lower eyelid white; crown, neck above, back, and wing coverts, ferruginous, mixed with black and gray; chin pale aſh; throat yellowiſh, with ſmall duſky ſpots; body whitiſh beneath, with duſky lines; quill feathers duſky, with triangular rufous ſpots; tail rounded, cinereous at the tip; legs browniſh. Length 15 inches; weight from 12 to 15 pounds. This well-known ſpecies is ſubject to great variety, and inhabits the northern countries of Europe, Aſia, and Africa, migrating in winter to the more temperate regions. In Britain it ſeldom appears in numbers till about the middle of November; but ſome occaſionally appear as early as the latter end of September, or beginning of October. They generally come to us with northerly or eaſterly winds, when the more northern countries become frozen; and if the froſt in thoſe parts where they breed is ſuddenly ſevere, large flights are ſometimes met with on our coaſts, where they remain for a day, to recruit their ſtrength, and then diſperſe. In England they are not ſo plentiful as formerly, when the art of ſhooting flying was leſs practiſed. A great many, however, are yet to be found in the more uncultivated parts of Devonſhire, Cornwall, and Wales, as well as in the north of Scotland; but they are nowhere ſo abundant as in the large tracts of woods in Ireland. In ſevere weather, they accumulate, from the moors and inland counties, to the woods in the weſt of England. It is one of the few winter birds that occaſionally breed with us. It builds a neſt of a few fibres, or dry leaves, on the ground, generally at the root of a tree, and lays four eggs, ſomewhat larger than thoſe of a pigeon, of a yellowiſh-white, ſpotted and blotched with rufous brown and aſh colour. Its uſual food is inſects and worms, for which it bores with its bill into moiſt places, feeding principally at night, when its call reſembles that of the ſnipe. In ſome countries the woodcock remains the whole year, only moving, in the breeding ſeaſon, from the plains to the mountains. In this country, it uſually prepares for its departure about the middle of March, when flocks come down to the ſea coaſt, and, if the wind is favourable, are ſoon out of ſight; but if it be contrary, they linger till it change. Grallæ.

543 *Minor.* *Little woodcock.*—Bill ſtraight; legs browniſh; front cinereous; hind head black, with four tranſverſe yellowiſh lines; chin white; body above black, waved with ſlight tawny; yellow beneath. Eleven inches and a half long. Inhabits America. Its fleſh is reckoned exquiſite.

544 *Major.* *Great ſnipe.*—Legs and crown black, the latter with a pale divided line down the middle, a pale ſtreak above and beneath the eyes; body varied above, white beneath; bill like that of the woodcock; lower feathers of the body, except the middle of the belly, edged with black; quill feathers duſky; tail feathers reddiſh, and, except the two middle ones, with black lines. Weighs about eight ounces; length 16 inches. Inhabits Siberia, and very rarely England.

545 *Gallinago.* *Common ſnipe.*—Bill ſtraight, tuberculated; legs brown; body varied with blackiſh and tawny, white beneath; front with four brown lines; crown, bill, ocular band, and wings black; chin pale ruſty; tail feathers black at the baſe; rump variegated. The weight of this ſpecies is about four ounces, and the length nearly 12 inches. It is met with, in marſhy ſituations, in almoſt every part of the world, and is very plentiful in our own iſland. In very wet times it reſorts to the hills; but more generally frequents the marſhes of the plains, where it can penetrate the earth with its bill, in queſt of worms. Some few remain with us the whole year, and breed in the more extenſive marſhes and mountainous bogs. The neſt is made of the materials around it, as coarſe graſs, or heath, and placed on a dry ſpot, near a ſplaſh or ſwampy place, the eggs, like that of the lapwing, being much pointed, and invariably placed with their ſmaller ends inwards. In the breeding ſeaſon the ſnipe changes its note entirely. The male will keep on the wing for an hour together, mounting like a lark, uttering a ſhrill piping noiſe, and then deſcend with great velocity, making a bleating ſound, like that of an old goat, which is alternately repeated round the ſpot poſſeſſed by the female, eſpecially while ſhe is ſitting on her neſt. The young ones run off ſoon after they are freed from the ſhell; but they are attended by the parent birds, until their bills have acquired a ſufficient firmneſs to enable them to provide for themſelves. When undiſturbed in its retreats, the ſnipe walks leiſurely, with its head erect, and keeps moving the tail at ſhort intervals. But it is rarely obſerved in this ſtate of tranquillity, being extremely watchful, and perceiving the ſportſman, or his dog, at a great diſtance, and either concealing itſelf among the variegated withered herbage, ſo ſimilar in appearance to its own plumage, that it is almoſt impoſſible to diſcover it, or, as happens more frequently, ſpringing and taking flight beyond the reach of the gun. When firſt diſturbed it utters a kind of feeble whiſtle, and generally flies againſt the wind, turning nimbly in a zig-zag direction, and

Grallæ. and ſometimes ſoaring almoſt out of ſight. From its vigilance and manner of flying, it is very difficult to ſhoot; but ſome ſportſmen can draw it within range of their fowling-piece, by imitating its cries, and others are contented to catch it in the night by ſprings. The ſnipe is much eſteemed as a delicious and well-flavoured diſh; and though it is very fat it rarely diſagrees even with the weakeſt ſtomach.

546 *Gallinula.* *Jack-ſnipe*, *judcock*, or *gid*.—Bill ſtraight, tuberculated; body variegated; legs greeniſh; lores brown; rump varied with violet; bill black; body variegated with teſtaceous, black, violet, and gloſſy green; head with pale yellow and black lines, reaching from the bill to the hind head; breaſt ſpotted; belly and vent white. Eight inches and a half long. Inhabits Europe, Aſia, and America. Is found in the ſame places with the preceding, but is more ſolitary and rare. It will lie among ruſhes, or other thick covert, till in danger of being trampled on, and, when rouſed, ſeldom flies far. It comes to us later than the common ſnipe, and is never known to remain in this country during the breeding ſeaſon. It is as much eſteemed as the ſnipe, and is cooked in the ſame manner.

547 *Glottis.* *Greenſhank*.—Bill ſtraight, the lower baſe red; body beneath ſnowy; legs greeniſh; bill black; the lower mandible bending a little upwards; eyebrows and lower part of the back white; head, neck, and back, pale cinereous; ſhafts of the feathers ſpotted with brown; quill feathers duſky, ſpotted with white on the inſide; tail white, with duſky lines; legs very long. Weight about ſix ounces; length 14 inches. Inhabits Europe, Aſia, and America. Is ſometimes ſeen, in ſmall flocks, on our coaſts, in winter; as alſo in the marſhes and fens contiguous to the ſea. Some few are ſuppoſed to remain with us all the ſummer, and to breed in our fens. The greater part, however, retire northward to breed, and are found in Sweden, Ruſſia, and Siberia. Their fleſh, like all the reſt of this genus, is well-flavoured, and reckoned good eating.

548 *Calidris.* *Redſhank*, or *pool-ſnipe*.—Bill ſtraight, red; legs ſcarlet; ſecondary quill feathers white; bill black towards the tip; irides reddiſh-hazel; head and neck cinereous above; back and ſhoulders greeniſh-brown; wing coverts cinereous, mixed with duſky and brown, and ſpotted with whitiſh; ſecondary quill feathers, except the two inner ones, white towards the tip; primary duſky, the four or five inner ones tipt with white; line over the eyes white; a duſky ſpot between the bill and eyes; ſhort duſky ſtreaks on the chin and throat; under part of the body and rump white, with ſmall duſky ſpots; each of the tail feathers with 12 or 13 tranſverſe black lines. Weighs about five ounces, and is 12 inches long. Inhabits Europe and America. Is not uncommon in ſome parts of England, reſiding the greater part of the year in the fen countries, where it breeds and rears its young. It lays four eggs, which are whitiſh, tinged with olive, and marked with irregular ſpots of black, chiefly on the thicker end. When diſturbed it flies round its neſt, making a noiſe like a lapwing. It is not ſo common on the ſea ſhores as ſeveral of its congeners, and is of a ſolitary diſpoſition, being moſtly ſeen alone, or only in pairs.

549 *Totanus.* *Spotted ſnipe*, *red-legged godwit*, or *ſpotted redſhank*.—Blackiſh, with white ſpots; white beneath; lines on the breaſt and bands on the lateral tail feathers blackiſh; legs red. Size of the greenſhank. Inhabits Europe, frequenting the banks of rivers, and feeding on the ſmaller ſhell-fiſh and other vermes. Seldom viſits Britain. Grallæ.

Leſſer godwit, *jadreka ſnipe*, or *ſtone plover*.—Bill inclining a little upwards at the point, red at the baſe; body gray brown, varied with rufous; white beneath; quill feathers white at the baſe, the four firſt without ſpots; tail white at the baſe; irides whitiſh; cheeks reddiſh; back brown; quill feathers blackiſh; feathers round the bill reddiſh-white. Seventeen inches long, and weighs nine ounces. Inhabits the north of Europe, and is gregarious; but ſeldom occurs in Britain. 550 *Limoſa.*

Red godwit, or *red-breaſted godwit*.—Bill a little recurved, yellowiſh; legs black; body reddiſh-ruſty beneath; bill blackiſh at the tip, head, neck, breaſt and body, ferruginous above, and, except the neck, ſtreaked with black; lower part of the back and rump rufous white; greater quill feathers black without, the baſe white within; ſecondary and tail feathers half black and half white. Weight about 12 ounces; length 18 inches. There is a variety with the head and neck cinereous, and the chin and belly white. Inhabits Europe and America, and is gregarious, but rarely ſeen with us. 551 *Lapponica.*

Common or *gray godwit*.—Bill ſtraight, reddiſh-yellow; legs greeniſh; head and neck reddiſh; three of the quill feathers black, with a white baſe; a broad white ſtreak from the bill to the eye; body reddiſh-brown above; feathers with a duſky ſpot in the middle. Subject to very conſiderable variety both in ſize and plumage. In general, it weighs from ſeven to twelve ounces, and meaſures from 15 to 16 inches. It inhabits Europe, Aſia, and Africa; continues with us the whole year, and reſorts to the fens in ſpring for breeding. In the winter it is found on our ſhores, particularly at the mouths of large rivers and inlets, where the mud and ſand become bare at low water, and where it feeds on inſects. It is much eſteemed by epicures as a great delicacy, and ſells very high. It is caught in nets, to which it is allured by a *ſtale*, or ſtuffed bird, in the ſame manner, and at the ſame ſeaſon as the ruffs and reeves. 552 *Ægocephala.*

Godwit.—Brown, edged with whitiſh; neck whitiſh, with ſmall brown ſpots; chin and belly white; quill feathers with black bands; bill a little turned up, brown, with a purple baſe; tail feathers white; the two middle ones wholly, the reſt barred with brown on the outer ſide. Sixteen inches long. Inhabits Europe. Regarded by ſome ornithologiſts as only a variety of the *ægocephala*. 553 *Leucophæa.*

Cinereous godwit.—Legs long, cinereous; head, neck, and back varied with cinereous and white; chin and breaſt white, ſpotted with aſh; bill thicker than in the greenſhank; tail with cinereous lines. Size of the greenſhank. Inhabits Lincolnſhire; but is very rare, and ſeems to be imperfectly known. 554 *Caneſcent.*

Cambridge godwit.—Legs orange; bill red; body brown aſh above, white beneath; wing coverts and tail feathers barred with black; leſſer wing coverts brown, edged with white and barred with black; quill feathers blackiſh, white within; the ſecondary barred with white. Larger than the redſhank. Was ſhot near Cambridge, and firſt deſcribed by Pennant. 555 *Cantabrigienſis.*

Gen. 55. TRINGA, *Sandpiper*.

556 TRINGA. 557 Characters. Bill roundiſh, as long as the head; noſtrils ſmall, linear; tongue ſlender; feet four-toed; hind toe of one joint, and raiſed from the ground.

The birds of this genus frequent the plains and ſhores, and hardly touch the ground with their back toe.

558 *Pugnax.* *Ruff* and *reeve*.—Bill and legs rufous; three lateral tail feathers without ſpots; face with fleſh-coloured granulations; bill ſometimes black or yelloviſh; irides hazel; back of the neck with a large tuft of feathers, which fall off in moulting ſeaſon. Female pale brown; back ſpotted with black; tail brown; the middle feathers ſpotted with black; breaſt and belly white. The ruffs, or males, are ſo very variable in their markings, that two are ſeldom found alike. Buffon mentions that Klein compared above 100 ruffs together, and found only two that were ſimilar. About one foot long. Inhabits Europe and Siberia. The male does not acquire the ornament of his neck till the ſecond ſeaſon, and, before that time, is not eaſily diſtinguiſhed from the female, except by being larger. After moulting, at the end of June, he loſes his ruff and the red tubercles of his face; and from that time, till the ſpring of the year, he again, in plumage, looks like his mate. Theſe birds leave our iſland in the winter, and are then ſuppoſed to aſſociate with other congenerous ſpecies. In the ſpring, as ſoon as they arrive again in England, and take up their abode in the fens where they were bred, each of the males (of which there appears to be a much greater number than of females) immediately fixes on a particular dry or graſſy ſpot in the marſh, about which he runs round and round, until it is trodden bare, wiſhing, apparently, to invite the female to take joint poſſeſſion, and become an inmate. As ſoon as a ſingle female arrives, and is heard or obſerved by the males, her feeble cry ſeems to rouſe them all to war; for they inſtantly begin to fight; and their combats are deſcribed as being both deſperate and of long continuance, the female, at the end of the battle, remaining the prize of the victor. It is at the time of theſe battles, that they are caught in the greateſt numbers in the nets of the fowlers. They are alſo at other times caught by day nets, and are drawn together by means of a ſtuffed reeve, which is placed in ſome ſuitable ſpot for that purpoſe. The ruff is much prized as a delicious diſh, and is ſought after with great eagerneſs by the fowlers who live by catching them and other fen birds, for the markets of the metropolis, &c. Before they are offered for ſale, they are commonly put up to feed, for about a fortnight, on boiled wheat, and bread and milk, mixed with hemp-ſeed, to which ſugar is ſometimes added; in conſequence of which mode of treatment they ſoon get very fat. In the beginning of May the female makes her neſt in a dry tuft of graſs, in the fens, and lays four white eggs, marked with ruſty ſpots.

559 *Vanellus.* *Lapwing*, *pewit*, *baſtard plover*, &c.—Legs red; creſt pendent; breaſt black; bill black; irides hazel; crown ſhining black; creſt on the hind head four inches long; cheeks and ſides of the neck white; a black line beneath each eye; throat black; hind part of the neck mixed with white, aſh colour, and red; back and ſcapulars gloſſy green; ſome of the feathers with ferruginous tips; leſſer wing coverts ſhining black, blue and green; greater quill feathers black, the four firſt with a white ſpot at the end; leſſer black on the upper half, white on the lower; belly white; vent and tail coverts orange; outer tail feathers white; the reſt on the lower half black, tipt with dirty white; upper white. Weighs between ſeven and eight ounces. Is found in moſt parts of Europe, as far north as Iceland; and in the winter is met with in Perſia and Egypt. The chief food of the lapwings is worms; and ſometimes they may be ſeen in flocks nearly covering the low marſhy grounds in ſearch of theſe, which they draw with great dexterity from their holes. When the bird meets with one of thoſe rolls of earth that are thrown out by the perforations of the worm, it firſt gently removes the mould from the mouth of the hole, then ſtrikes the ground at the ſide with its foot, and ſteadily and attentively waits the iſſue; while the reptile, alarmed by the ſhock, emerges from its retreat, and is inſtantly ſeized. In the evening, the lapwings purſue a different plan, running along the graſs, and feeling under their feet the worms, which now come forth, invited by the coolneſs of the air. Thus they obtain a plentiful meal, and afterwards waſh their bill and feet in the ſmall pools or rivulets. They remain in this country the whole year. The female lays four olive-coloured eggs, ſpotted with black, on the dry ground, near ſome marſh, on a little bed of dry graſs which ſhe prepares. She ſits about three weeks, and the young are able to run within two or three days after they are hatched. The parent exhibits the greateſt attachment to them, and has recourſe to very amuſing artifices to allure boys and dogs from approaching them. In place of waiting the arrival of the enemies at the neſt, ſhe boldly puſhes out to meet them. When as near as ſhe dare venture, ſhe riſes from the ground with a loud ſcreaming voice, as if juſt fluſhed from hatching, though, probably, at the ſame time, not within 100 yards of her neſt. She then flies with great clamour and apparent anxiety, whining and ſcreaming round the invaders, ſtriking at them with her wings, and ſometimes fluttering as if ſhe was wounded. To complete the deception, ſhe becomes ſtill more clamorous as ſhe retires from the neſt. If very near, ſhe appears altogether unconcerned; and her cries ceaſe in proportion as her fears are increaſed. When approached by dogs, ſhe flies heavily, at a little diſtance before them as if maimed, ſtill clamorous and bold, but never offering to move towards the quarter where her young are ſtationed. The dogs purſue, in expectation every moment of ſeizing the parent, and by this means actually loſe the young; for the young cunning bird, having thus drawn them off to a proper diſtance, exerts her powers, and leaves her aſtoniſhed purſuers to gaze at the rapidity of her flight. Theſe birds, when tamed, clear gardens of worms and ſnails. Their fleſh and eggs are both reckoned delicacies for the table. In winter they join in large flocks, but are then very ſhy.

560 *Cambetta.* *Gambet*, *gambet ſandpiper*, or *red-legged horſeman*.—Bill and legs red; body variegated with pale yellow, and cinereous; white beneath; bill tipt with black; irides yelloviſh green; wing-coverts and ſcapulars cinereous, and edged with yellow; firſt quill and tail feathers duſky, the latter edged with yellow. About the ſize of the greenſhank. Inhabits the northern parts of Europe and America, but ſeldom occurs in France or England.

Gralle. *Welſh ſandpiper.*—Blackiſh-aſh; chin and middle of the belly white; baſe of the bill and legs red. Eight inches and a half long. Inhabits Glamorganſhire and Caermarthenſhire.

561 *Nigricans.*

562 *Interpres.* *Turnſtone, Hebridal ſandpiper*, or *ſea-dotterel.*—Legs red; body black, varied with white, and ferruginous; breaſt and belly white; bill black, a little turned up at the tip; cheeks and neck black above; tail black in the middle, and white at the ends. Female more duſky; head varied with brown and whitiſh; neck blackiſh above. Though theſe are the uſual characteriſtics, the ſpecies is very ſubject to varieties. About the ſize of a throſtle; length nine inches and a half, and weight rather more than four ounces. Inhabits the ſea coaſts of Europe and America. Though not known to breed with us, it viſits ſome of our ſhores in Auguſt, and departs in ſpring. The name has been given it from its manner of turning up the ſtones in ſearch of worms and marine inſects. It makes a ſlight neſt on the dry ground or ſand, and lays four olive-coloured eggs, ſpotted with black. This ſpecies is not uncommon in the north of Scotland.

563 *Striata.* *Striated ſandpiper.*—Baſe of the bill and legs yellow; tail feathers white, barred with brown; moſt of the quill feathers white. Nearly 11 inches long. Inhabits Europe and North America. Feeds on ſhell-fiſh and molluſca, which it ſearches for at the ebb of the tides, and on inſects which it catches, hanging over the water like a ſwallow.

564 *Macularia.* *Spotted ſandpiper.*—Baſe of the bill and legs fleſh colour; all the body ſpotted; eyebrows and double band on the wings white; bill duſky; body above greeniſh-brown, white, with duſky ſpots beneath; two middle tail feathers greeniſh-brown, the reſt white, with duſky lines. Female without ſpots beneath. About the ſize of a thruſh, and eight inches long. Inhabits Europe and North America; is migratory, and is ſometimes, though rarely, found in Britain.

565 *Cinerea.* *Aſh-coloured ſandpiper.*—Cinereous above, white beneath; legs duſky green; head ſpotted with black; neck with duſky ſtreaks; back and wing-coverts with concentric black ſemicircles, varied with cinereous and white; tail coverts black and white; tail cinereous, edged with white; breaſt ſpotted with black; membrane ſurrounding the toes narrow and toothed. Length about 10 inches; weight from four ounces and a quarter to five and three quarters. This ſpecies, like moſt of the tribe, is ſubject to conſiderable variety. It inhabits Europe and America; viſits ſome parts of our coaſts, in large flocks, in winter, and departs about the latter end of March or beginning of April.

566 *Fuſca.* *Brown ſandpiper.*—Pale brown, ſpotted with black above, white beneath; fore part of the neck ſtreaked with black; tail cinereous; wing-coverts edged with whitiſh; bill and legs black. Size of a jack-ſnipe. Inhabits England, but is very ſcarce.

567 *Lincolorienſis.* *Black ſandpiper.*—White, varied with gray and brown ſpots above, with oblong brown and black ſpots beneath; two middle tail feathers all black. Size of a thruſh. Inhabits England, chiefly in Lincolnſhire.

568 *Lobata.* *Gray phalarope*, or *great coot-footed tringa*—Bill ſubulate, and bent in at the tip; feet pinnate; breaſt waved with white; bill black; front white; crown duſky; neck pale aſh above; back, rump, and ſhoulders dove-colour, with duſky ſpots; wing-coverts and quill feathers brown; breaſt and belly white; tail duſky, edged with cinereous; legs black; membrane round the toes indented. Size of the common purre; weight one ounce. Inhabits Europe, Aſia, and America. Congregates about the borders of the Caſpian ſea, and is not common in Britain. In ſtormy weather, it ſwims in numbers on lakes; but in fine weather, is ſolitary among the fens. Gralle.

569 *Hyperborea.* *Red phalarope*, or *cock coot-footed tringa.*—Bill ſubulated, bent in at the tip; feet pinnate; breaſt cinereous; ſides of the neck ferruginous; bill black; band through the eyes blackiſh; bar on the wings white; rump with blackiſh bands. The female is gray above, rufous beneath, with the eyebrows and baſe of the tail reddiſh, and the rump white; bill yellowiſh; band above the eyes reddiſh; bar on the wings white, and the rump ſpotted with blackiſh. Eight inches long. Inhabits northern Europe and America; but is rarely met with in our own country. Theſe birds go in pairs, and catch inſects in the water with their bill. They do not dive, and are but bad ſwimmers. The female makes her neſt on dry ground, and lays four eggs.

570 *Alpina.* *Alpine ſandpiper*, or *dunlin.*—Brown teſtaceous; breaſt blackiſh; tail feathers whitiſh-aſh; legs browniſh; belly white; two middle tail feathers a little longer. Weighs from nine to eleven drams; length of the largeſt eight inches. Inhabits Europe, Aſia, and America, and is not uncommon on our own coaſts during great part of the year. The female lays four eggs, of a dirty white, blotched with brown round the thicker end, and marked with a few ſmall ſpots of the ſame colour on the ſmaller end.

571 *Ochropus.* *Green*, or *wood ſandpiper.*—Bill dotted at the tip; legs greeniſh; back brown green; belly and outer tail feathers white; bill greeniſh; crown and hind head duſky aſh; rump variegated; eyebrows white. Inhabits Europe, North America, and Siberia. This elegant ſpecies weighs about three ounces and a quarter; length full 10 inches. It is by no means plentiful in Britain, and, except in pairing time, lives ſolitary. It is never ſeen near the ſea; but frequents rivers, lakes, and other freſh waters. It runs on the ſhores, or ſkims the ſurface of the water. It utters a cry as it riſes, and ſometimes dives when purſued by the buzzard. It feeds on the fry of ſmall fiſhes and worms. Though its fleſh taſtes ſomewhat of muſk, it is conſidered as a great delicacy. It comes to us about the middle of September, and leaves us as late as the end of April, when it departs northward to breed.

572 *Littorea.* *Shore ſandpiper.*—Smooth bill, and legs cinereous; quill feathers brown, the ſhaft of the firſt ſnowy. Near 11 inches long. Inhabits Europe; and is ranked by ſome ornithologiſts among Britiſh birds.

573 *Grenovicenſis.* *Greenwich ſandpiper.*—Body varied above; neck cinereous beneath; belly, vent, and ſides of the rump white; bill black; legs greeniſh; crown brown, ſtreaked with black; neck aſh-coloured beneath; back and wing-coverts brown ferruginous, edged with whitiſh; hind part of the back, rump, and leſſer wing-coverts cinereous; tail cinereous, the feathers waved towards the tip, which is pale ruſty. Size of the preceding, but very rare. The circumſtance of one having been ſhot near Greenwich, has given riſe to the trivial name.

574 *Maritima.* *Sea*, or *ſelninger ſandpiper.*—Varied above with gray and black, white beneath; legs yellow; middle of the back

Gral'æ. back violet; throat and tail duſky; four outer tail feathers very ſhort, and edged with white. Size of a ſtare. Inhabits Norway and Iceland. A ſmall flock of this ſpecies, conſiſting of 10 or 12, was once obſerved, ſome years ago, near Bexhill, on the 8th of December.

575 *Hypoleucos.* *Common ſandpiper.*—Bill ſmooth; legs livid; body cinereous, with black ſtripes, white beneath; bill brown; irides hazel; head brown, with black ſtreaks; eyebrows white; neck cinereous above; back and wings greeniſh-brown, with numerous, narrow, duſky lines; quill feathers brown, and, except the firſt, with a white ſpot within; tail rounded, and gloſſy-green brown. Weight about two ounces; length ſeven inches and a half. Inhabits Europe and America. Viſits this country in the ſpring, chiefly frequenting our lakes and rivers, on the borders of which it makes a neſt compoſed of moſs and dried leaves, and moſt commonly placed in a hole in the bank. It lays four or five eggs of a dirty white, marked with duſky and cinereous ſpots, moſtly at the larger end. When diſturbed, it makes a piping noiſe as it flies; and, when running on the ground, the tail is conſtantly in motion. In autumn it is liable to be much infeſted with the *hippoboſca hirundinis*.

576 *Canutus.* *Knot.*—Bill ſmooth; legs aſh-coloured; primary quill feathers ſerrated; outermoſt tail feather white, without ſpots; bill duſky aſh; irides hazel; lores duſky; eyebrows and band on the wings white; body cinereous above, white beneath; lower wing-coverts tipt with white; chin and breaſt with minute ſpots; belly and vent with duſky lines; rump with brown ſemicircles. Nine inches long, and weighs four ounces and a half. Inhabits Europe and America. In Lincolnſhire, and the other fenny diſtricts of England, it is caught, in great numbers, by nets, into which it is decoyed by carved wooden figures to repreſent itſelf. It is alſo fattened for ſale, and eſteemed by many equal to the ruff in the delicacy of its flavour. The ſeaſon for taking it is from Auguſt to November, after which the froſt compels it to diſappear. This bird is ſaid to have been a favourite diſh with Canute king of England; and Cambden remarks that its name is derived from his.

577 *Cinclus.* *Stint*, *purre*, or *ſanderling*.—Bill and legs black; lores white; body and rump gray and brown; head and neck pale cinereous above, with brown ſtreaks; back and wing-coverts browniſh-aſh, the greater tipt with white; throat white, mixed with brown; breaſt and belly white; two middle tail feathers more duſky, the reſt edged with white: the legs are ſometimes brown. The country people frequently call it *ox-bird*, *ox-eye*, *leaſt ſnipe*, *ſea-lark*, or *wagtail*. It is nearly eight inches in length, and weighs about an ounce and three quarters. Inhabits Europe, Aſia, and America. During winter it is found on all our coaſts, appearing in vaſt flocks, and eſpecially affecting the flat ſandy ſhores and inlets. They leave us in April, though it is ſuſpected that ſome remain with us all the year. Theſe birds run nimbly near the edges of the flowing and retiring waves, and are almoſt perpetually wagging their tails, while they are, at the ſame time, buſily employed in picking up their food, which conſiſts chiefly of ſmall worms and inſects. On taking flight, they give a kind of ſcream, and ſkim along the ſurface of the water with great rapidity, as well as with great regularity, not flying directly forward, but performing their evolutions in large ſemicircles, alternately approaching the ſhore and the ſea in their ſweep, the curvature of their courſe being indicated by the flocks appearing ſuddenly and alternately in a dark or in a ſnowy-white colour, as their backs or their bellies are turned to or from the ſpectator.

Gralla.

578 *Pufilla.* *Little ſandpiper.*—Bill and legs brown; body reddiſh beneath; outer tail feathers with a white ſhaft; rump variegated; bill tipt with black; greater wing-coverts and quill feathers brown, tipt with white; tail duſky; breaſt and belly white. About the ſize of a hedge-ſparrow, and between five and ſix inches long. Inhabits Northern Europe and Nootka Sound; and has been once or twice killed in England.

579 *Squatarola.* *Gray ſandpiper.*—Bill black; legs greeniſh; body gray, white beneath; head, back, and wing-coverts, edged with greeniſh-aſh; cheeks and chin with oblong duſky ſpots, and with the belly and rump white; tail barred with black and whi . Weight about 7 ounces; length 12 inches. Inhabits Europe and America. Is not plentiful on our ſhores, ſeldom more than ſix or ſeven being ſeen in a flock, and all of them retiring northward to breed. In Siberia and Carolina, it is ſaid to be found in large flocks.

580 *Iſlandica.* *Red*, or *Aberdeen ſandpiper.*—Bill and legs brown; body ferruginous beneath; ſecondary quill feathers edged with white; body thickly ſprinkled with black and ferruginous above; wing-coverts white on the outer edge; rump and vent whitiſh, the former waved with black, the latter with a few black ſtreaks; quill feathers black, with white ſhafts; tail feathers cinereous, with white ſhafts. From eight to ten inches long. Inhabits the north of Europe and America. Sometimes appears in great flocks on the coaſts of Eſſex and the north of Scotland. In ſummer it frequents the neighbourhood of the Caſpian ſea, and alſo the river Don. It is perpetually running up and down on the ſandy banks, picking up inſects and ſmall worms, on which it feeds.

Gen. 56. CHARADRIUS, *Plover*.

581 Charadrius.

582 Characters. Bill roundiſh, obtuſe, ſtraight; noſtrils linear; feet formed for running, three toed.

The birds of this genus frequent the mouths of rivers, and the neighbourhood of torrents, and ſeem to enjoy rainy weather. From this laſt circumſtance is derived their French name *pluvier*, and the Engliſh *plover*.

583 *Hiaticula.* *Ring plover*, *ring dotterel*, or *ſea lark*.—Breaſt black; front blackiſh, with a white band; crown brown; legs yellow; upper half of the bill orange, lower black; irides hazel; body gray-brown above, white beneath; eggs bluiſh-white, with ſmall round purpliſh ſpots. Of this ſpecies there is alſo a gray variety, with the collar and belly white; and another gray-aſh, with the front and collar white, and the lower half of the tail black, tipt with ruſty; the former inhabiting Spain, and the latter America. The more common ſort is a native of both Europe and America, and is a well known viſitant of our ſhores in ſummer; uſually arriving in ſpring, and migrating in autumn, or at leaſt retiring to the more inland parts of the country. It weighs about two ounces; and is between ſeven and eight inches long. It pairs early in May, and makes no neſt, but lays four eggs in a ſmall cavity in the ſand, juſt above high-water mark. They are of a cinereous brown, marked all over with ſmall black and aſh-coloured ſpots. It is to be remarked,

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ed, that these and other birds which lay invariably only four eggs on the ground, place them so as to occupy the least possible space, that is, with their small ends touching each other as a centre. The ringed plover is greatly attached to its young, and will practise various deceptions to save them from men and dogs; sometimes fluttering along the ground as if crippled, and sometimes seeming to tumble head over heels repeatedly, till it has enticed its enemy to a distance from its young, and then it flies off.

584 *Vociferus.* *Noisy plover.*—Bands on the breast, neck, front, and cheeks white; tail pale yellow, with a black bar; legs yellow. Between nine and ten inches long. Inhabits America. Is very restless and clamorous.

585 *Morinellus.* *Dotterel.*—Breast ferruginous; band over the eyes, and line on the breast white; legs black; bill black, depressed in the middle; front mixed with dusky and gray; hind head black, temples and chin white; upper part of the neck, back and wings, gray-brown; line across the breast white; middle of the belly black, reddish-white below; greater quill feathers brown, and some of them edged with white; tail olive brown, with a dusky band near the end, and tipt with white. The female is distinguished by a dusky band over the eyes, and brown crown. The crown of this species is sometimes varied with white, gray-brown, and yellowish; the body beneath yellowish, mixed with white; the two middle tail feathers brown, and the lateral ones white. Weight between four and five ounces; length nearly 10 inches. Inhabits Europe, and makes this island a resting station in its migratory flights to and from its breeding place. It is seen on some of our downs, heaths, and moors, from April to the beginning of June; returns again in September, and remains till November. On the Wiltshire downs, it resorts to the new sown corn or fallow-ground, for the sake of worms and beetles, its principal food. In the autumn it flies in flocks of five, six, or more. It is a stupid bird, and easily shot, but much esteemed for the delicacy of its flesh.

586 *Himantopus.* *Long-legged plover*, or *long shanks.*—White; back and wings black; bill black, longer than the head; legs red, and very long; bill black, slender, tapering to a sharp point, the upper mandible a little longer than, and bent over, the lower; irides red; neck dusky spots above. There is a variety with white and black wings, and the tail feathers white. This extraordinary species is certainly the longest legged bird, in proportion to its bulk, hitherto known; the length from the apex of the bill to the end of the tail being thirteen inches, and from that to the end of the toes, five inches more. It is rare in Britain, and in many parts of Europe, so that its manners are very imperfectly known. According to Latham, it is common in Egypt, being found there in the marshes in October. Its food is said to consist principally of flies. It is likewise plentiful about the salt lakes, and often seen on the shores of the Caspian sea, as well as by the rivers which empty themselves into it, and in the southern deserts of Independent Tartary. It is also often met with in the warmer parts of America, and sometimes in Jamaica.

587 *Pileatus.* Plate CCCXCIX. Fig. 2. *Hooded plover.*—Bill and feet red; face naked, having a yellowish carunculated membrane; head and part of the neck black; hind head furnished with a few short pointed feathers hanging like a crest; beneath white; body above rufous gray; under part white. Ten and a half inches long. Native of Senegal.

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Gen. 57. RECURVIROSTRA, *Avocet.* 588 RECURVIROSTRA.

Bill depressed, subulated, recurved, pointed, flexible at the tip; feet palmated, four toed, hind toe not connected, very short, and placed high up; nostrils narrow, pervious; tongue short. 589 Characters.

Of this singular genus there are only three species, of which the first inhabits Europe.

590 *Avocetta.* *Scooping avocet.*—In provincial English, *butter-slip*, *scooper*, *yelper*, *picarini*, *crooked bill*, *cobler's awl*, &c. Variegated with white and black; bill three inches and a half long; irides hazel; crown black, a white spot behind and beneath the eyes; rest of the head, neck, back, exterior part of the wings, lesser quill feathers, tail, and under part of the body white; inner scapulars and greater quill feathers without and at the tips black; legs bluish, and very long membrane connecting the toes indented. Resides in the temperate parts of Europe; weighing thirteen ounces, and measuring, from the tip of the bill to the end of the tail, eighteen inches. It breeds in the fens of Lincolnshire, and on Romney Marsh, in Kent. The female lays two white eggs, tinged with green, and marked with large black spots. In winter these birds assemble in small flocks of six or seven, and frequent the shores, particulary the mouths of large rivers, in search of worms and marine insects, which they scoop out of the mud or sand. They seem to be particularly fond of the *cancer pulex*, or *locusta*. By means of their long legs, they run over shores that are covered five or six inches with water. In their movements they are lively, alert, volatile, and difficult to catch. When the female is frightened off her nest, she counterfeits lameness; and, when a flock is disturbed, they fly with their necks stretched out, and their legs extended behind, over the head of the spectator, making a shrill noise, and uttering a yelping cry of *twit*, *twit*, all the time.

591 *Americana.* Plate CCCXCIX. Fig. 1. *American avocet.*—Head and neck reddish; back black, white beneath. Fourteen inches long. Inhabits North America and New Holland.

592 *Alba.* *White avocet.*—White; lower wing coverts brownish; bill orange; legs brown. Fourteen inches and a half long. Inhabits Hudson's bay.

593 HÆMATOPUS.

Gen. 58. HÆMATOPUS.

Bill compressed, the tip an equal wedge; nostrils linear; tongue a third part as long as the bill; feet formed for running, three toed, cleft. 594 Characters.

595 *Ostralegus.* Plate CCCXCIX. Fig. 3. *Sea pie*, or *pied oyster catcher.*—Bill, eyelids, and legs red, the former sometimes tipt with black; irides scarlet; body sometimes totally black; frequently the head, neck, and body above, black; white beneath; a small white spot under the eyes; breast with a white semicircular band; middle wing coverts at the tips, and greater, entirely white; quill feathers spotted with white on the inside; tail from the middle to the base white, lower half black; claws black. Weight seventeen ounces, length sixteen inches. Inhabits almost every sea shore, but seems never to quit the coast. Congregates in small flocks in winter, and chiefly subsists on marine insects

Grallæ. fects and ſhell-fiſh, eſpecially on cyſters, which it ſeizes with great adroitneſs. It makes no neſt, but depoſits its eggs on the bare ground, above high-water mark. The eggs are generally four, of an olivaceous brown, blotched with black, and ſomewhat larger than thoſe of the lapwing. The male is very watchful at the time of incubation, and on the leaſt alarm, flies off with a loud ſcream, and the female inſtantly runs from her eggs to ſome diſtance, and then takes wing. It is a ſhy bird, but becomes bolder when the young are hatched. The latter are capable of running as ſoon as they quit the egg, and are led by their parents to their proper food. The young are eaſily tamed.

596 GLAREOLA. Gen. 59. GLAREOLA, *Pratincole.*

597 Characters. Bill ſtrong, ſhort, ſtraight, and hooked at the tip; noſtrils at the baſe of the bill, linear and oblique; gap of the mouth large; feet four toed, toes long, ſlender, connected at the baſe by a membrane; tail forked, conſiſting of twelve feathers.

598 *Auſtriaca.* *Auſtrian pratincole.*—Gray-brown above; collar black; chin and throat white, breaſt and belly reddiſh-gray. Very ſubject to vary in its plumage. Inhabits the heaths of ſouthern Europe. About nine inches long. Feeds on worms and aquatic inſects; is very reſtleſs and clamorous, and lays about ſeven eggs.

599 *Senegalenſis.* *Senegal pratincole.*—Bill, legs, and whole body brown. Nine inches and a half long. Inhabits near the Senegal, and alſo Siberia.

600 *Novia.* *Spotted pratincole.*—Brown, ſpotted with white; lower part of the belly and vent reddiſh-white, with black ſpots; bill and legs black. Size of the *auſtriaca*. Inhabits Germany.

601 FULICA. Gen. 60. FULICA.

602 Characters. Bill convex; upper mandible arched over the lower at the edge; lower gibbous near the tip; noſtrils oblong; front bald; feet four-toed and ſub-pinnated.

Birds of this tribe frequent waters and feed on worms, inſects, and ſmall fiſh. They have a compreſſed body; the bill thick, and bent in towards the tip; the upper mandible reaching far up the forehead, and the wings and tail ſhort. They are divided into *gallinules* or *water hens*, and *coots*. The former have the feet cleft; the upper mandible membranaceous at the baſe, and the wings concave; while the latter have the toes ſurrounded by a ſcalloped membrane; the mandibles equal; noſtrils oval, narrow and ſhort.

603 *Gallinule.* A. *Feet cleft. Gallinule.*

604 *Chloropus.* *Common gallinule*, or *moor hen.*—Front tawny; bracelets red; body blackiſh; bill red, with a greeniſh tip; irides red; body ſooty above, mixed with olive; cinereous beneath; outer edge of the wings and lower tail-coverts white; legs greeniſh; toes flat and broadiſh. Weighs from 14 to 16 ounces; length 14 inches. Inhabits Europe and America, and is a very common ſpecies, being found in moſt ſedgy and ſlow rivers, or ſtreams of water, and frequently in ponds abounding in weeds, where it can lie concealed. It feeds principally on inſects, ſeeds, and vegetable productions of various ſorts, in queſt of which it frequently quits the water. It runs faſt, and is equally expert in ſwimming and diving, but flies heavily, and with its legs hanging down. As it runs or ſwims, it is continually flirting up the tail, when the white underneath is very conſpicuous. The neſt is made of flags or ruſhes, and placed near the ſurface of the water, on ſome branch of a tree or buſh, and ſometimes on the ſtump of an old willow. The eggs are commonly five or ſix, but ſometimes nine or ten, of a light yellowiſh brown, marked with ruſt-coloured ſpots. The young are hatched in about three weeks, and inſtantly take the water. This ſpecies breeds twice or thrice in the courſe of a ſeaſon. Its fleſh is reckoned delicious. Grallæ.

605 *Porphyrio.* *Purple gallinule.*—Front red; bracelets many; body green; violet beneath. Fifteen inches long. Common in moſt temperate and warm countries. Is docile and eaſily tamed. Stands on one leg, and lifts the food to its mouth with the other. Feeds on fiſh, roots, fruits, and ſeeds.

606 *Coot.* B. *Feet pinnated. Coot.*

607 *Atra.* Plate CCCXCIX. Fig. 4. *Common, black*, or *bald coot.*—Front fleſh-coloured; bracelets greeniſh-yellow; body blackiſh; bill yellowiſh-white; front, except in pairing time, white; legs yellowiſh-green; outer edge of the wings white. There are ſeveral varieties. Length 18 inches; weight from 20 to 30 ounces. Inhabits Europe, Aſia, and America. It occurs in Great Britain at all ſeaſons of the year, and is not ſuppoſed to migrate to other countries, but changes its ſtations, and to remove from the pools, where the young have been reared to the larger lakes, where flocks aſſemble in the winter. The female commonly builds her neſt of a great quantity of coarſe dried weeds, well matted together, and lined within with ſofter and finer graſſes, in a buſh of ruſhes ſurrounded by the water. She lays from 12 to 15 eggs at a time, and commonly hatches twice in a ſeaſon. Her eggs are about the ſize of thoſe of a pullet, and of a pale browniſh-white colour, ſprinkled with numerous ſmall dark ſpots, which, at the thicker end, ſeem as if they had run into each other, and formed bigger blotches. As ſoon as the young quit the ſhell, they plunge into the water, dive, and ſwim about with great eaſe, but they ſtill gather about the mother, and take ſhelter under her wings, and do not entirely leave her for ſome time. They are firſt covered with a ſooty-coloured down, and are of a ſhapeleſs appearance; and, while in this ſtate, before they have learned by experience to ſhun their enemies, they are often ſacrificed to the rapacity of the pike, the kite, moor-buzzard, &c. A female of this ſpecies built her neſt in Sir William Middleton's lake at Belſay, in Northumberland, among the ruſhes, which were afterwards looſened by the wind, ſo that the neſt was driven about, and floated on the ſurface of the water; notwithſtanding which, ſhe continued to ſit as uſual, and brought out her young on her moveable habitation. The common coot ſwims and dives with great eaſe, but is a bad traveller, and may be ſaid not to walk, but to ſplaſh and waddle between one pool and another, with a laboured, ill balanced, and awkward gait. During the day it uſually ſkulks among the ruſhes or other water plants, rarely venturing abroad, except in the duſk, or at night, in queſt of herbage, ſeeds, inſects, and fiſhes. The ſportſman and his dog can ſeldom force it to ſpring from its retreat, as it will rather bury itſelf in the mud than take wing, or, if

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if it be very closely pursued, and compelled to rise, it gets up with much fluttering and apparent difficulty.

608 *Aterrima.* *Greater coot.*—Front white; bracelets red; body blackish. Has much the appearance and manners of the last, but is larger and blacker. It is found both in England and Scotland. The French eat it on meagre days.

609 *Cristata.* *Crested coot.*—Blue black; naked front and crown red; caruncle red; bifid; erect; bracelets red, green, and yellow; bill whitish, with a red base; legs dusky. Eighteen inches long. Inhabits China and Madagascar.

610 VAGINALIS.

Gen. 61. VAGINALIS, *Sheath-bill.*

611 Characters. Bill strong, thick, conical, convex, and compressed; upper mandible covered above with a moveable horny sheath; nostrils small, placed before the sheath; tongue round above, flattened beneath, and pointed at the tip; face naked and papillous; wings with an obtuse excrescence under the flexure; legs strong; four toed; naked a little above the knees; toes rough beneath; claws grooved.

612 *Alba.* *White sheath-bill.*—Bill black at the base; sheath a horny-yellow or black plate, nearly covering the nostrils; face naked; and in the adult bird, beset with white, or pale orange warts; a brown or blackish wart above the eyes, larger than the rest; feathers white; excrescence on the wings blackish; legs two inches long, and generally reddish. The only species of the genus; about the size of a pigeon. From 15 to 18 inches long; inhabits New Zealand and the South seas, and feeds on shell-fish and carcases.

613 PARRA.

Gen. 62. PARRA, *Jacana.*

614 Characters. Bill tapering, somewhat obtuse; nostrils oval, in the middle of the bill; front covered with lobated caruncles; wings spinous.

615 *Chilensis.* *Chilese jacana.*—Claws moderate; legs brown; hind-head subcrested. Inhabits Chili. Size of a jay, but has longer legs; feeds on worms and insects; is noisy, and defends itself by the spurs on the wings. Builds in the grass, and lays four tawny eggs, speckled with black.

616 *Jacana.* *Chesnut jacana.*—Hind claws very long; legs greenish. Ten inches long; inhabits watery places in South America, and utters almost unceasingly, a shrill disagreeable cry.

617 *Chavaria.* *Faithful jacana.*—Toes long; legs tawny; hind head crested; bill dirty white; upper mandible like that of the dunghill cock; a red membrane on both sides at the base of the bill extending to the temples, in the middle of which are the eyes; irides brown; hind head with about 12 blackish feathers; three inches long, forming a pendent crest; rest of the neck covered with thick black down; body brown; wings and tail blackish; wing-spurs two or three, and half an inch long; belly light black; thighs half bare; toes so long as to entangle each other in walking. About the size of a cock, and stands a foot and a half from the ground. Inhabits the rivers and inundated places near Carthagena in America; feeds on herbs: has a clear and loud voice, a slow gait, and easy flight. The natives keep one of these birds tame to wander with the poultry, and defend them against birds of prey, which it does by means of the spurs on its wings. It never deserts the charge committed to its care, and brings them home at night. It will readily suffer itself to be handled by grown up persons, but not by children.

Grallæ.

618 RALLUS.

Gen. 63. RALLUS, *Rail.*

619 Characters. Bill thickish at the base; attenuated on the back towards the tip; compressed; a little incurved and pointed; tongue rough at the tip; body compressed; tail short; feet four-toed and cleft.

The birds of this genus have the bill a little inflected; small nostrils; tongue rough; and the tail very short.

620 *Crex.* *Land rail, crake, corn crake, daker hen,* &c.—Wings reddish-rusty; bill and legs brown-ash; irides hazel; feathers of the body reddish-brown; the upper ones black in the middle; chin very pale; belly whitish-yellow. About nine inches and a half long. Inhabits the sedgy parts of Europe and Asia. From its appearing at the same time with the quail, and frequenting the same places, it is sometimes called *king of the quails.* Its well known cry is first heard as soon as the grass becomes long enough to shelter it, and continues till the grass is cut; but the bird is seldom seen, as it skulks in the thickest parts of the herbage, and runs so nimbly through it, winding and doubling in every direction, that it is difficult to come near it. When hard pushed by the dog, it sometimes stops short and squats down, by which means its too eager pursuer overshoots the spot, and loses the trace. It seldom springs but when driven to extremity, and generally flies with its legs hanging down, but never to a great distance. As soon as it alights, it runs off, and before the fowler has reached the spot, the bird is at a considerable distance. It is a migrative species, appearing with us about the latter end of April, and departing in October. On its first appearance, and till the female begins to sit, the male is frequently heard to make a singular kind of noise, much resembling that of a comb when the finger is drawn along the teeth of it, and which has been used as a decoy. When they first arrive, they are very lean, but before their departure, become excessively fat, and are much sought after for the delicacy of their flesh.

621 *Aquaticus.* *Water rail, brook ouzel, bilcock, velvet runner,* &c.—Wings gray, spotted with brown; flanks spotted with white; bill orange beneath; bill black, reddish at the base; irides red; feathers of the upper part of the body olive-brown, and black in the middle; the lower ones cinereous; those of the lower part of the belly and vent edged with rufous; quill feathers dusky; lower tail-coverts white; tail feathers short, black; the two middle ones at the tip, the rest edged with ferruginous; legs dusky-red. Length about 12 inches; weight four ounces. Inhabits watery places in Europe and Asia. Though not very plentiful, it is sometimes found in various parts of Great Britain, in low situations, about water courses and rivulets, where it seeks shelter among sedge-rushes and reeds, and is seldom put to flight, depending chiefly on its legs for safety. When roused, it flies only a small distance, and that in a heavy and awkward manner, with its legs hanging down. It runs nimbly, and frequently flirts up its tail. The nest is made

Grallæ. made of ſedge and coarſe graſs among the thickeſt aquatic plants, or in willow beds. The female lays ſix or more eggs, rather larger than thoſe of a blackbird, very ſmooth, and of a pure white. This bird continues with us all the year, and by many is erroneouſly believed to be the land rail metamorphoſed in the autumn, without knowing perhaps that the latter leaves this country at that ſeaſon, and that the difference of the bills alone conſtitutes an eſſential diſtinction.

622 *Porzana.* *Spotted gallinule*, or *ſpotted water-hen.*—Two middle tail feathers edged with white; bill and legs pale olive; bill greeniſh-yellow; irides hazel; head brown, ſpotted with black; line over the eyes pale gray; neck above, and flanks brown-aſh, with ſmall white ſpots; back and wing-coverts olive with black ſtripes, and near the edges of the feathers with white ſpots; the greater with white ſtripes and lines; cheeks, chin, and throat pale gray, with brown ſpots; breaſt brown, with white ſpots; belly varied with cinereous and white; vent ochre-yellow. The weight of this elegant ſpecies is about four ounces; length nine inches. Inhabits Europe and North America; is migrative and ſcarce in England, and ſeems to have the manners and habits of the preceding.

623 *Niger.* *Black rail.*—Black; bill red at the baſe, brown at the tip; legs brown, or red. Nine inches long. Inhabits Africa.

624 *Puſillus.* *Dwarf rail.*—Striped with ferruginous and black; body black beneath, with narrow white bands; throat and breaſt bluiſh. Size of a lark. Inhabits near the ſalt lakes of Dunria.

625 PSOPHIA.

Gen. 64. PSOPHIA, *Trumpeter.*

626 Characters. Bill cylindrical, conical, convex, ſomewhat pointed; the upper mandible longeſt; noſtrils oval and pervious; tongue cartilaginous, flat, and fringed at the tip; feet four-toed and cleft.

627 *Crepitans.* *Gold-breaſted trumpeter.* Black; back gray; breaſt gloſſy-green; orbits naked, red; bill yellowiſh-green; legs ſtrong, tall, browniſh aſh or green; the back toe a round protuberance beneath, at a little diſtance from the ground; tail very ſhort; feathers of the head downy; of the lower part of the neck ſquamiform; of the ſhoulders ferruginous, lax, pendulous, and ſilky; ſcapulars long and hanging. The *agami* of voyagers and others. Nearly 22 inches long, and about the ſize of the common domeſtic fowl. Inhabits South America, particularly the interior of Guiana in conſiderable troops. In its native haunts is not diſtruſtful of man, and is ſuſceptible of domeſtication in an eminent degree, acquiring many of the ſocial habitudes of the dog. It emits from the lungs a harſh and uncommon noiſe, not unlike that of a child's trumpet. It ſtands on one leg, and ſleeps with its neck drawn in between the ſhoulders.

628 *Undulata.* *Undulated* or *African trumpeter.*—Creſt of the hind head ſhort, whitiſh; that of the breaſt long, black, and pendent. Size of a gooſe. Inhabits Africa.

629 GALLINÆ.

ORDER V. GALLINÆ.

630 Characters. BILL convex; the upper mandible arched and dilated at the edge over the lower; noſtrils half covered with a convex cartilaginous membrane; tail feathers more than 12; feet cleft, but connected at the innermoſt joint; claws broad; toes ſcabrous below, and formed for ſcratching up the ground. In moſt ſpecies the males have ſpurs on the legs. They live chiefly on the ſeeds of plants, but likewiſe eat inſects, grubs, and worms, which are macerated in their crop. They are polygamous, and build rude neſts, for the moſt part on the bare ground, the female laying many eggs at a time. They collect their young about them by a particular cry when they feed them, and lead and protect them till they moult. They are eaſily tamed, and are uſeful on account of their fleſh, their eggs, and their feathers. Gallinæ.

631 OTIS.

Gen. 65. OTIS, *Buſtard.*

632 Characters. Bill ſomewhat convex; noſtrils oval and pervious; tongue bifid, pointed; feet formed for running; three-toed; tall; naked above the thighs.

633 *Tarda.* *Great buſtard.*—Wave ſpotted, with black and rufous; whitiſh beneath; head, (of the male) and each ſide of the throat creſted; head and neck cinereous; quill feathers black; tail with rufous and black lines, and from 18 to 20 feathers; pouch beginning under the tongue, and reaching to the breaſt; long, capacious, and fit to hold near ſeven quarts of water; legs duſky. The male weighs from 20 to 30 pounds, and the female about 10 or 12; length about four feet. Inhabits the open plains of Europe, Aſia, and Africa. It is the largeſt of Britiſh birds, and is now almoſt extinct in our iſland. It makes no neſt, but the female lays her eggs in ſome hole in the ground, in a dry corn field. The eggs are two in number as big as thoſe of a gooſe, and of a pale olive-brown marked with ſpots of a deeper colour. If during her abſence from the neſt, any one handles, or even breathes on the eggs, ſhe immediately abandons them. Buſtards feed on green corn, the tops of turnips, and various other vegetables, as well as on worms; and they have alſo been known to eat frogs, mice, and young birds of the ſmaller kind, which they ſwallow whole. They are remarkably ſhy and timid, carefully avoiding mankind, and being eaſily driven away in whole herds by the ſmalleſt dog. They are ſlow in taking wing, but run with great rapidity; and the young are even ſometimes courſed and taken by greyhounds. Though not properly migratory, they leave their uſual haunts in very ſevere winters, when the downs are covered for any length of time with ſnow, and repair to the more incloſed and ſheltered ſituations, in ſmall flocks, and even ſtray to a great diſtance. In the Crimea they are ſeen in large flights, eſpecially during winter, when the wings and crop feathers are ſometimes ſo encumbered with ice, that the bird is unable, in the ſnow, to take the run previous to flying, in conſequence of which many are caught by the hand, or by means of dogs, and brought to market alive. The fleſh, particularly of the young, when kept a little time, is excellent.

634 *Arabs.* *Arabian buſtard.*—Ears with erect creſts. Size of the preceding. Inhabits Aſia and Africa.

635 *Tetrax.* *Little buſtard*, or *field duck.*—Head and throat ſmooth; bill gray-brown; crown black, with rufous bands; temples and chin reddiſh-white, with ſmall dark ſpots; neck (of the male) black, with a white collar; body above varied with black, rufous, and white; beneath

Gallinæ. and outer edge of the wings white. About the size of a pheasant; length 17 inches. Inhabits Southern Europe and Asia. A few instances are on record of its having been found in England. In France, it is frequently served at table as a delicacy, though the flesh be blackish. In June it lays from three to five eggs, of a glossy green, and the young are able to fly in August.

636 *Afra.* Plate CCCC. Fig. 1. *White-eared bustard.*—Black; back cinereous; ears white; in the male the bill and legs are yellow; the crown is cinereous, and the wings are marked with a large white blotch; the neck behind, and thighs above the knees, have a white collar; the tail feathers 14; the female is cinereous, and the thighs and belly black. Length 22 inches. Native of the Cape of Good Hope.

637 *Houbara.* *Ruffed bustard.*—Yellowish, spotted with brown; feathers of the neck long, whitish, with black shafts; quill feathers black, with a white spot in the middle. Size of a capon. Inhabits Africa and Arabia.

638 *Oedicnemus* *Thick-kneed bustard, stone curlew*, or *Norfolk plover.*—Gray; two first quill feathers black, white in the middle; bill sharp pointed; legs cinereous; bill black; legs greenish-yellow; lower eyelid naked, pale yellow; a yellow line above and beneath the eyes; a brown line from the bill, under the eyes to the ears; knees thick, as if swollen; belly and thighs white. Weighs about 17 ounces; length 18 inches. Inhabits Europe, Asia, and Africa. With us it is a migrative species, making its first appearance the latter end of April, or beginning of May, when the male is heard to make a very loud shrill noise, particularly in the dusk of the evening. It chiefly frequents large corn fields, heaths, or warrens, in open hilly situations; makes no nest, but lays two light-brown coloured eggs, blotched and streaked with dusky, on the ground. Its food chiefly consists of insects and worms, and sometimes also of mice, frogs, and toads. In the autumn, these birds assemble in small flocks preparatory to their departure, and are seldom seen after the beginning of October. When flying, they stretch out their feet straight behind, like the heron. The young are hardly to be distinguished from the stones in which they generally harbour.

639 STRUTHIO.

Gen. 66. STRUTHIO.

640 Characters. Bill subconical; nostrils oval; wings short, unfit for flight; feet formed for running.

641 *Camelus.* Plate CCCC. Fig. 2. *Black ostrich.*—Feet with two toes; head small; bill horn-colour; irides hazel; eyelids fringed, head and greater part of the neck bald, flesh-coloured, with a few scattered hairs; feathers of the body lax, black, and decomposite; the webs on each side equal; quill and tail feathers snowy, waved, and long, with a sprinkling of black on the edge or tip; chest callous; wing spurs two, one at the end of the wing, and one on the spurious wing; thighs and flanks naked; feet strong, gray-brown; toes connected at the base, the outer very short, and unarmed. The ostrich stands so very high as to measure from seven to nine feet, from the top of the head to the ground; from the back, however, it is seldom more than three or four feet, the rest of its height being made up by its extremely long neck. In the sandy and burning deserts of Africa and Asia, the black ostriches are seen in such large flocks, as sometimes to have been mistaken for distant cavalry. Their strong jointed legs, and cloven hoofs, if we may use the expression, are well adapted both for speed and defence. Their wings and all their feathers are insufficient to raise them from the ground. Their voice is a kind of hollow mournful lowing; and they graze on the plain with the quacha and the zebra. In the interior parts of southern Africa they frequently make great havock in the corn fields, destroying the ears of wheat so effectually, that in a large tract of land, it often happens that nothing but the bare straw is left behind. In running, they have a proud and haughty look, and even when closely pursued, never appear to be in great haste, especially when the wind is with them, and they can easily accelerate their progress by flapping their wings, so as to outstrip the swifted horse. But if the weather be hot and calm, or if the birds have by any accident lost a wing, the difficulty of outrunning them is not so great. The ostrich is one of the few polygamous birds found in a state of nature, one male being generally seen with two or three, and frequently with five females. It has been commonly believed that the female, after depositing her eggs in the sand, and covering them up, allows them to be hatched by the heat of the climate, and leaves the young to shift for themselves. Recent travellers have, however, assured us, that no bird whatever has a stronger affection for her offspring, and that none watches her eggs with greater assiduity. It is true, that during the intense heat of the day, when incubation is less necessary, she sometimes forsakes them, but she always carefully broods over them by night. Kolben affirms that this species sit on their eggs like other birds, and that the males and females take this office by turns, as he had frequent opportunities of observing. Nor is it more true, that they forsake their young as soon as excluded from the shell. On the contrary, the old ones are very assiduous in supplying them with grass and water, are careful to defend them from harm, and will even themselves encounter every danger in their defence. All the females which are attached to one male, deposit their eggs in the same place, to the number of ten or twelve each, about the size of a child's head. These they hatch all together, the male also taking his turn of sitting on them. Thus from sixty to seventy eggs have sometimes been found in one nest, and Linnæus erroneously assigned them to one female. The term of incubation is six weeks. The nest appears to be merely a hole in the ground, formed by the birds trampling the earth for some time with their feet. If the eggs are touched by any person in the absence of the parents, they immediately discover it by the scent, at their return, and not only desist from laying any more in the same place, but trample to pieces with their feet all those that have been left. On this account the Africans are very careful in taking part of the eggs away not to touch any of them with their hands, but always fetch them out of the nest with a long stick. Within the eggs are frequently discovered a number of small oval-shaped pebbles, of the size of a marrow-fat pea, of a pale yellow colour, and exceedingly hard. These eggs are reckoned a great delicacy, and are prepared in various ways. From their large size, one of them is sufficient to serve two or three persons at a meal. The ostrich itself is chiefly valuable for its plumage; and the Arabs have reduced the chase of it to a kind of science. They hunt it,

Gallinæ. it, we are told, on horſeback, and begin their purſuit at a gentle gallop; for ſhould they, at the outſet, uſe the leaſt raſhneſs, the matchleſs ſpeed of the game would immediately carry it out of their ſight, and in a very ſhort time, beyond their reach. But when they proceed gradually, it makes no particular effort to eſcape. As it does not go in a direct line, but runs firſt on one ſide, and then on the other, its purſuers ſave much ground by ruſhing directly onward. In a few days at moſt, the ſtrength of the animal is exhauſted, and it then either turns on the hunters, and fights with the fury of deſpair, or hides its head, and tamely receives its fate. Frequently, alſo, the natives conceal themſelves in oſtrich ſkins, and thus are enabled to approach near enough to ſurpriſe them. Some perſons breed up theſe birds in flocks, for they are tamed with very little trouble, and may be rendered very uſeful in a domeſtic ſtate. Beſides the valuable feathers which they caſt, the eggs which they lay, their ſkins, which are uſed by the Arabians as a ſubſtitute for leather, and their fleſh, which many eſteem excellent food, they are ſometimes made to ſerve in place of horſes. It is pleaſant to obſerve with what dexterity they play and friſk about in a tame ſtate, particularly in the heat of the day, when they will ſtrut along the ſunny ſide of a houſe, with great majeſty, perpetually fanning themſelves with their expanded wings, and ſeeming, at every turn, to admire and be enamoured of their own ſhadows. They are very tractable and familiar towards perſons who are acquainted with them, but are often fierce towards ſtrangers, whom they frequently attempt to puſh down by running furiouſly on them, and when they ſucceed thus far, they not only peck at their fallen foe with their bill, but ſtrike at him violently with their feet. While thus engaged, they ſometimes make a fierce hiſſing noiſe, and have their throat inflated, and mouth open; and at other times, make a kind of cackling noiſe. During the night they often utter a doleful or hideous cry, ſomewhat reſembling the diſtant roaring of a lion, or the hoarſe tone of a bear or an ox, as if they were in great agony. They will ſwallow with the utmoſt voracity rags, leather, wood, iron, or ſtone, indiſcrimately. "I ſaw one at Oran (ſays Dr Shaw), that ſwallowed, without any ſeeming uneaſineſs or inconvenience, ſeveral leaden bullets, as they were thrown upon the floor, ſcorching hot from the mould." Mr Adanſon mentions two oſtriches which afforded him a ſight of a very extraordinary nature. They were ſo tame, that two little blacks mounted both together on the back of the largeſt. No ſooner did he feel their weight, than he began to run as faſt as poſſible, and carried them ſeveral times round the village, as it was impoſſible to ſtop him otherwiſe than by obſtructing the paſſage. To try their ſtrength, he directed a full-grown negro to mount the ſmalleſt, and two others the largeſt. This burthen did not ſeem at all diſproportioned to their ſtrength. At firſt they went at a pretty ſharp trot, but when they became heated a little, they expanded their wings, as if to catch the wind, and moved with ſuch fleetneſs that they ſcarcely ſeemed to touch the ground. "Moſt people (obſerves M. Adanſon) have, one time or other, ſeen a partridge run, and conſequently muſt know that there is no man whatever able to keep up with it: and it is eaſy to imagine, that if this bird had a longer ſtep, its ſpeed would be conſiderably augmented. The oſtrich moves like the partridge, with this advantage; and I am ſatisfied that thoſe I am ſpeaking of would have diſtanced the fleeteſt race-horſes that were ever bred in England. It is true, they would not hold out ſo long as a horſe, but they would undoubtedly be able to go over the ſpace in leſs time. I have frequently beheld this ſight, which is capable of giving one an idea of the prodigious ſtrength of an oſtrich, and of ſhewing what uſe it might be of, had we but the method of breaking and managing it as we do a horſe." Gallinæ.

642 *Emeu* or *caſſowary*.—Feet three-toed; helmet and dewlaps naked; bill and legs black; gape very large; irides topaz; eyelids fringed; noſtrils nearly at the tip of the bill; eyes large; helmet horny, reaching from the baſe of the bill to the middle of the crown, three inches high, the fore part blackiſh, the hind part yellow; temples and neck bald, wrinkled, and reddiſh, with a blue or purple tinge, and covered with a few ſcattered hairs; two pendent caruncles, partly red and partly blue one each ſide of the neck; cheſt on which it reſts callous; feathers browniſh-black, lax, generally two from one ſhaft; no tail; wings conſiſting of about five naked duſky ſhafts; claws ſtraight. Five feet and a half long. Inhabits within the torrid zone in Aſia; is a fierce and bold bird; kicks with its feet like a horſe, grunts like a hog, feeds on vegetables, which it ſwallows whole; lays greeniſh eggs, more oblong than thoſe of the black oſtrich; runs very ſwiftly, and is incapable of flying. *Caſſuarius.*

643 *New Holland caſſowary*.—Feet three-toed; crown flat; ſhanks ſerrated behind. Seven feet two inches long. Inhabits New Holland. *Novæ Hollandiæ.*

644 *American oſtrich*.—Feet three-toed, and a round callus behind. Nearly the height of a man. Inhabits South America; feeds on fruits, fleſh, and flies, defends itſelf with its feet, and calls its young by a kind of hiſs. *Rhea.*

645 Gen. 67. DIDUS, *Dodo*. DIDUS.

646 Characters. Bill narrowed in the middle, with two tranſverſe wrinkles; each mandible bent in at the tip; noſtrils oblique, near the edge of the middle of the bill; face naked beyond the eyes; legs ſhort and thick; feet cleft; wings unfit for flight; no tail.

647 *Hooded dodo*.—Black, waved with whitiſh; head hooded; feet four-toed; bill ſtrong, large, bluiſh, with a red ſpot; the upper mandible yellowiſh at the tip, the lower bulging near the tip; gape very large; irides whitiſh; plumage ſoft; belly whitiſh; head large, black, as if covered with a cap; feathers of the rump curled, inclining to yellow; legs yellowiſh; claws wanting. This uncouth ſpecies is rather bigger than a ſwan, and nearly three feet in length. It inhabits the iſlands of Mauritius and Bourbon in the Indian ocean. According to Herbert, it ſeldom weighs leſs than 50 pounds; has a ſlow pace; the body round and fat; and the ſtomach ſo ſtrong as to digeſt ſtones. It is, however, ſo ſeldom met with that its true hiſtory is little known. *Ineptus.*

648 *Solitary dodo*.—Varied with gray and brown; feet four-toed; eyes black; ſpurious wings, terminating in a round protuberance. The female with a white protuberance, reſembling a teat on each ſide of the breaſt. Size of a turkey. Inhabits the iſland of Rodrigue, where it is not uncommon, though ſeldom more than *Solitarius.*

Gallinæ. two are found together. It makes its neſt in by-places, of leaves of the palm, a foot and a half in thickneſs, and lays one egg, bigger than that of a gooſe. The male ſits in his turn, and does not ſuffer any bird to approach within two hundred yards of the ſpot when the hen is ſitting. The incubation laſts ſeven weeks. Some months elapſe before the young can ſhift for itſelf. The old ones in the mean time treat it with affection and tenderneſs, and are faithful to each other afterwards, though they may occaſionally mix with others of their kind. The young bird, though timid, is ſtupid enough to allow a perſon to approach it; but when grown up, it is more ſhy, and will not be tamed. They are chaſed in the winter ſeaſon, viz. from March to September, being then fat, and the young birds are much eſteemed for the table.

649 PAVO.

Gen. 68. PAVO, *Peacock.*

650 Characters. Bill convex and ſtrong; head with a creſt of feathers turning forwards; noſtrils large; rump feathers long, broad, expanſile, and covered with eye-like ſpots.

651 *Criſtatus.* *Creſted peacock.*—Head with a compreſſed creſt; ſpurs ſolitary. It is impoſſible to deſcribe the beauties of this well-known ſpecies in adequate terms. Its matchleſs plumage, as Buffon obſerves, ſeems to combine all that delights the eye in the ſoft and delicate tints of the fineſt flowers, all that dazzles it in the ſparkling luſtre of the gems, and all that aſtoniſhes it in the grand diſplay of the rainbow. Its head is adorned with a tuft, conſiſting of 24 feathers, whoſe ſlender ſhafts are furniſhed with webs only at the ends, painted with the moſt exquiſite green, mixed with gold. The head, throat, neck, and breaſt, are of a deep blue, gloſſed with green and gold; the back of the ſame, tinged with bronze; the ſcapulars and leſſer wing-coverts are of a reddiſh cream-colour, variegated with black; the middle coverts deep blue, gloſſed with green and gold; the greater coverts and ſpurious wing are of a reddiſh-brown, as are alſo the quills, ſome of which are variegated with black and green; the belly and vent are black, with a greeniſh line. But the diſtinguiſhing character of this bird is its train, which riſes juſt above the tail, and when erected, forms a fan of the moſt reſplendent hues. The two middle feathers are ſometimes four feet and a half long, the others gradually diminiſhing on each ſide. The ſhafts, which are white, are furniſhed from their origin nearly to the end with parted filaments of varying colours, ending in a flat valve, which is decorated with what is called the *eye*. This is a brilliant ſpot, enamelled with the moſt enchanting colours, yellow, gilded with various ſhades, green, running into blue and bright violet, varying according to its different poſitions, the whole receiving additional luſtre from the centre, which is a fine velvet black. When pleaſed or delighted, and in ſight of his females, the peacock erects his tail, and diſplays all the majeſty of his beauty, and he frequently turns ſlowly round, as if to catch the ſunbeams in every direction, accompanied with a hollow murmuring voice. His cry at other times is very diſagreeable, and often repeated. The peahen is ſomewhat leſs than the cock, and though furniſhed both with a train and creſt, is deſtitute of thoſe dazzling beauties which diſtinguiſh the male. She lays five or ſix eggs of a whitiſh colour, in ſome ſecret ſpot, where ſhe can conceal them from the male, who is apt to break them; and ſhe ſits from 25 to 30 days, according to the temperature of the climate and the warmth of the ſeaſon. Peacocks were originally brought from the diſtant provinces of India, and thence have been diffuſed over every part of the world. They are ſometimes found in a wild ſtate in many parts of Aſia and Africa. The largeſt and fineſt are ſaid to be met with in the neighbourhood of the Ganges, and on the fertile plains of India, where they grow to a great ſize. In colder climates, they require care in rearing; and do not acquire their full plumage till their third year. In former times they were conſidered as a delicacy, and made a part of the luxurious entertainment of the Roman voluptuaries. The females of this ſpecies, like the pheaſant, have been known to aſſume the appearance of the male, by a total change of colour, which is ſaid to take place after they have done laying. A white variety of peacock occurs not unfrequently, in which the eyes of the train are barely viſible, and may be traced by a different undulation of ſhade on the pure white of the tail. Gallinæ.

652 *Bicalcaratus.* *Iris peacock.*—Brown; head ſubcreſted; ſpurs two; bill blackiſh; the upper mandible, from the noſtrils to the tip, red; irides yellow; crown black; face naked; temples white; neck ſhining-brown, with black lines; upper part of the back, ſhoulders, and wing-coverts brown, with yellowiſh ſtripes; the feathers near the tip with a large purple gold ſpot; lower part of the back and rump ſpotted with white; body brown beneath, with tranſverſe black ſtreaks; quill feathers duſky; legs brown. Larger than a pheaſant. Inhabits China.

Gen. 69. MELEAGRIS, *Turkey.*

653 MELEAGRIS. Bill conical, and incurved; head covered with ſpongy caruncles; chin with a longitudinal membranaceous caruncle; tail broad, and expanſile; legs ſpurred.

654 *Gallipavo.* *American*, or *common turkey.*—Front and chin caruunculated; breaſt of the male tufted. Female without a ſpur. Upwards of three feet and half long. Inhabits America; and is very generally domeſticated. In a wild ſtate it lives in woods, and feeds on nuts, acorns, and inſects. It rooſts on the higheſt trees; is very iraſcible, and impatient of any thing red. The cock ſtruts with an inflated breaſt, expanded tail, red face, and relaxed frontal caruncle, making a ſingular inward noiſe, which, when it is uttered, ſhakes the whole body. The eggs are numerous and white, with reddiſh or yellow ſpots. The females lay them in ſpring, generally in ſome retired and obſcure place; for the cock, enraged at the loſs of his mate while ſhe is employed in hatching, is otherwiſe apt to break them. They ſit on their eggs with ſo much perſeverance, that if not taken away, they will almoſt periſh with hunger before they will entirely leave the neſt. In a wild ſtate, turkeys are gregarious, and aſſociate in flocks, ſometimes of about five hundred. They are very ſwift runners, but fly awkwardly; and about the month of March, they become ſo fat, that they cannot fly beyond three or four hundred yards, and are then eaſily run down by a horſeman. The hunting of theſe birds forms one of the principal diverſions of the Canadians. When the latter have diſcovered the retreats of the turkeys, which in general are near fields of nettles, or where there is plenty of any kind of grain, they ſend a well-trained dog into the midſt of the flock.

The

Gallinæ. The birds no ſooner perceive their enemy than they run off at full ſpeed, and with ſuch ſwiftneſs that they leave the dog far behind; he, however, follows, and as they cannot go at this rate for any length of time, at laſt forces them to take ſhelter in a tree, where they ſit, ſpent and fatigued, till the hunters come up, and with long poles, knock them down one after another. Turkey cocks, among themſelves, are very fierce and pugnacious, and yet, againſt other animals, are uſually weak and cowardly. The diſpoſition of the female is in general much more mild and gentle than that of the male; and when leading out her young family to collect their food, though ſo large and apparently ſo powerful a bird, ſhe gives them very little protection againſt any rapacious animal that comes in her way, but rather warns them to ſhift for themſelves. It deſerves to be remarked, that though this ſpecies is reared with ſome difficulty, yet in its wild ſtate it is found in great plenty in the foreſts of Canada, that are covered with ſnow for more than three-fourths of the year. It is eaſily hurt by hunger or rain. They are bred in great numbers in Norfolk, Suffolk, and ſome other counties, from whence they are driven to the London markets in flocks of ſeveral hundreds. The drivers manage them with great facility, by means of a bit of red rag tied to the end of a long ſtick, which, from the antipathy that theſe birds bear to that colour, effectually anſwers the purpoſes of a ſcourge. We need ſcarcely notice, that the fleſh of the turkey is reckoned a delicate food. The Indians make an elegant clothing of the feathers, by twiſting the inner webs into a ſtrong double ſtring with hemp, or the inner bark of the mulberry-tree, and working it like matting, ſo that the whole appears rich and gloſſy, and as fine as ſilk ſhag. The natives of Louiſiana make fans of the tail; and of four tails joined together the French uſed formerly to form a paraſol.

655 *Satyra.* *Horned turkey.*—Head with two horns; body red, with eye-like ſpots; bill brown; noſtrils, front, and area of the eyes covered with black hair-like feathers; crown red; horns callous, blue, bent back; caruncle of the chin dilatable, blue, varied with rufous; legs whitiſh; ſpurred; tail feathers twenty. The female has the head covered with feathers, without horns or gular caruncle; feathers of the head and upper part of the neck black-blue, long, and decumbent; reſt of the body, as in the male, red with eye-like ſpots; ſpurs more obtuſe. Rather leſs than the preceding. Inhabits India.

656 PENELOPE.

Gen. 70. PENELOPE.

657 Characters. Bill naked at the baſe; head covered with feathers; chin naked; tail with twelve feathers; legs without ſpurs.

658 *Criſtata.* *Guan.*—Head with an erect creſt; temples violet. Two feet ſix inches long. Inhabits Brazil and Guiana, where it is frequently tamed, its fleſh being reckoned very delicate. It frequently utters a ſound like the word *jacu*.

659 *Cumanenſis.* *Jacu* or *yacou*.—Blackiſh; creſt and firſt quill feathers white. Size of a hen turkey. Inhabits Cayenne and Guiana. It erects its creſt, expands its tail, and cries in a mournful tone, like a young turkey. It builds on the ground, is eaſily tamed, and is often domeſticated.

660 *Marail.* *Marail turkey.*—Greeniſh-black; naked orbits; and legs red; throat ſomewhat naked, ſpeckled with white. Size of a common fowl, and not diſſimilar in ſhape. Gallinæ. Though not much known to naturaliſts, it is common in the woods of Guiana, at a diſtance from the ſea. It is generally ſeen in ſmall flocks, excepting at breeding-time, when it is only met with in pairs, and then frequently on the ground, or on low ſhrubs, at other times on high trees, on which it rooſts during the night. The female makes her neſt on ſome low buſhy tree, as near the trunk as poſſible, and lays three or four eggs. When the young have been hatched for ten or twelve days, they deſcend with the mother, which ſcratches on the ground like a hen, and broods them, till they can ſhift for themſelves. They breed twice a-year. The young birds are eaſily tamed, and ſeldom forſake the places where they have been brought up. Their cry is not unharmonious, unleſs they be irritated or wounded, when it is harſh and loud. Their fleſh is much eſteemed.

661 CRAX.

Gen. 71. CRAX, *Curaſſow.*

662 Characters. Bill ſtrong and thick; the baſe of each mandible covered with a cere; noſtrils in the middle of the cere; feathers covering the head turned ſpirally forward; tail large, ſtraight, and expanſile.

663 *Alector.* *Creſted curaſſow.*—(Male). Cere yellow; body black; belly white; bill black or horny; cere reaching from the middle of the bill behind the eyes; creſt erect, black, and three inches long; tail black and roundiſh, eleven inches long, feathers fourteen; ſpurs none. (Female.) Red; head bluiſh; creſt white, tipt with black; bill cinereous; irides red; legs brown. Subject to much variety. Three feet long. Inhabits the mountainous woods of South America. Lives on fruits, roots or trees, and is often domeſticated on account of its white and delicate fleſh. They are frequently kept tame in our menageries, and readily mix with other poultry, feeding on bread and grain, but they are unable to bear the dampneſs of the graſs of our meadows, which renders their toes ſubject to rot off. Dr Latham mentions an inſtance in which the whole of one foot was gone, and but part of one toe left on the other, before the creature died. Plate CCCC. Fig. 4.

664 *Globicera.* *Globoſe curaſſow*, or *curaſſow bird.*—Yellow; gibboſity of the noſtrils globular; body blackiſh-blue, lower part of the belly white; bill yellow, tipt with cinereous; gibboſity yellow, and very hard; irides red; orbits white; creſt black, tipt with white; legs pale ruſty. (Female.) Bill and legs cinereous; head and crown black; creſt black, with a white band; ſome of the feathers of the neck tipt with white; throat, breaſt, back, and wings brown; upper part of the belly white, and ſome of the feathers tipt with black; vent yellowiſh-brown; tail black, with four tranſverſe white bands. Size of the preceding. Inhabits Guiana.

665 PHASIANUS.

Gen. 72. PHASIANUS, *Pheaſant.*

666 Characters. Bill ſhort and ſtrong; cheeks covered with a ſmooth naked ſkin: legs generally with ſpurs.

The females produce many young ones at a brood, and take care of them for ſome time, leading them abroad, and pointing out food for them. The young are at firſt clad with a thick ſoft down. The neſts of the whole tribe are formed on the ground.

Common

Gallinæ.

667 *Gallus.*

· *Common cock*, or *wild cock*.—Comb on the crown, and two wattles on the chin compreſſed; ears naked; tail compreſſed and erected; feathers of the neck linear, long, and membranaceous at the tips; body, when wild, leſs than the common cock; comb large, indented, ſhining-red; temples and line from the creſt to the eyes naked and fleſh-coloured, a clay-coloured ſpot of the ſhape of a man's nail, and covered with ſhort feathers behind the eyes; feathers of the reſt of the head and neck long, narrow, gray at the baſe, black in the middle, and tipt with white; feathers of the upper part of the body grayiſh, with a white and a black ſtreak; breaſt reddiſh; greater wing-coverts reddiſh-cheſnut, with tranſverſe black and white ſtreaks; tail coverts gloſſy-violet; middle tail feathers long and falcated; ſpurs large and curved. The female without comb and wattles; head and neck gray; cheeks and chin whitiſh; body more duſky, and varied with brown, gray, and rufous; and wants the ſpurs. Inhabits India in a wild ſtate, is every where domeſticated, and ſubject to innumerable varieties in ſize and colour. His beautiful plumage and undaunted ſpirit, as well as his great utility, have rendered him a favourite in all countries into which he has been introduced. The cock is very attentive to his females, hardly ever loſing ſight of them. He leads, defends, and cheriſhes them, collects them together when they ſtraggle, and ſeems to eat unwillingly till he ſees them feeding around him. Whenever a ſtrange cock appears within his domain, he immediately attacks the intruder, and if poſſible, drives him away. The patience and perſeverance of the hen in the hatching, are truly extraordinary, but are too familiar to moſt of our readers to require to be detailed. Though by nature timid, and apt to fly from the meaneſt aſſailant, yet, when marching at the head of her brood, ſhe is fearleſs of danger, and will fly in the face of the fierceſt animal that offers to annoy her. As the chickens reared by the hen bear no proportion to the number of eggs which ſhe produces, many artificial ſchemes of rearing have been attempted. Chickens have long been hatched in Egypt by means of artificial heat. This is now chiefly practiſed by the inhabitants of a village called Berme, and by thoſe who live at a little diſtance from it. Towards the beginning of autumn, theſe perſons ſpread themſelves all over the country, and each of them is ready to undertake the management of an oven. Theſe ovens are of different ſizes, each capable of containing from forty to eighty thouſand eggs; and the number of ovens in different parts is about three hundred and eighty-ſix. They are uſually kept in exerciſe for about ſix months; and as each brood takes up twenty-one days in hatching, it is eaſy in every one of them to produce eight different broods of chickens in the year. The ovens conſiſt only of a low arched apartment of clay. Two rows of ſhelves are formed; and the eggs are placed on them in ſuch a manner as not to touch each other. They are ſlightly moved five or ſix times in the courſe of twenty-four hours. All poſſible care is taken to diffuſe the heat equally throughout, and there is but one aperture, juſt large enough to admit a man ſtooping. During the firſt eight days, the heat is rendered great, but during the laſt eight it is gradually diminiſhed, till at length, when the young brood are ready to come forth, it is reduced almoſt to the ſtate of the natural atmoſphere. Every keeper of an oven obliges himſelf to deliver to his employer only two thirds of as many chickens as there have been eggs entruſted to him; and he is a gainer by this bargain, as it always happens, except from ſome unlucky accident, that many more than that proportion of the eggs are productive. In this way it has been calculated that the Egyptian ovens give life annually to near a hundred millions of chickens. This uſeful and advantageous mode of hatching eggs was introduced into France by the ingenious and indefatigable Monſieur de Reaumur, who, by a number of experiments, reduced the art to certain principles, and applied it to the production of all kinds of domeſtic fowls. The young brood are generally hatched a whole day before they taſte food, and then a few crumbs of bread are given for a day or two, after which time they begin to pick up grain and inſects for themſelves. In order to ſave the trouble of attending them, capons are taught to watch them in the ſame manner as hens. M. de Reaumur informs us, that he has ſeen above two hundred chickens at once, all led about and defended by only three or four capons. It is aſſerted that even cocks may be taught to perform this office, which they will continue to do all their lives afterwards. Among the endleſs varieties of this ſpecies, the Engliſh game cock ſtands unrivalled by thoſe of any other nation for its invincible courage, and on that account is made uſe of as the inſtrument of the inhuman ſport of cock-fighting. The Athenians allotted one day in the year to this barbarous paſtime; and the Romans are ſaid to have learned it from them, and to have introduced it into this iſland. Henry VIII. was ſo fond of the ſport, that he cauſed a commodious houſe to be erected for that purpoſe, which, though now applied to a very different uſe, ſtill retains the name of the *cock-pit*. The Chineſe, the Sumatrians, and others in the eaſtern parts of the world, are ſo addicted to this ſavage diverſion, that, in the paroxyſms of their phrenſy, they will ſometimes riſk not only the whole of their property, but their wives and children on the iſſue of a battle. The cock, it is well known, is a watchful bird, and crows clapping his wings. The hen will lay eggs the whole year, provided ſhe has plenty of food and cold water, gravel, and a warm place. After laying ſhe has a peculiar note of triumph and exultation. Her heat is increaſed while hatching, but if put into cold water, ſhe ceaſes to ſit.

Gallinæ.

668 *Mexicanus.*

Courier pheaſant.—Tawny white; tail long, and ſhining green; a few white ſpots at the baſe of the tail. Eighteen inches long. Inhabits New Spain; is ſlow in flight, but ſo ſwift on foot as to outrun the fleeteſt horſes.

669 *Colchicus.*

Common pheaſant.—Rufous, head blue; tail wedged; cheeks papillous; bill pale, horn colour; irides yellow; cheeks red, ſpeckled with black; in the old birds wrinkled and pendulous; a greeniſh-black feathered line from the noſtrils to beneath the eyes; reſt of the head and neck green-gold, with a gloſs of violet and blue; lower part of the neck, breaſt, back, and rump, ſhining tawny; quill feathers brown, with ochreous ſpots; belly and vent white; tail feathers eighteen, with tranſverſe black bars; legs duſky, armed with ſpurs. Female leſs, varied with brown, gray, rufous, and blackiſh; cheeks feathered; and, after ſhe has done breeding, puts on the appearance of the male. There are ſeveral varieties. This beautiful bird is about nineteen inches long, and weighs from two pounds twelve ounces to three pounds four ounces. It is ſaid to have been brought from the iſland of Colchis

Gallinæ. chis by the Argonauts; is a native of Africa, and very common in almoſt all the ſouthern parts of the old continent, whence it was originally imported into Great Britain. Pheaſants are much attached to the ſhelter of thickets and woods, where the graſs is very long; but they alſo often breed in clover fields. They form their neſts on the ground, and the females lay from twelve to fifteen eggs, which are ſmaller than thoſe of the domeſtic hen. The neſt is uſually compoſed of a few dry vegetables put careleſsly together, and the young follow the mother like chickens, as ſoon as they break the ſhell. The parents and their brood remain in the ſtubble and hedge rows, if undiſturbed, for ſome time after the corn is ripe. If diſturbed, they ſeek the woods, and only come forth in the mornings and evenings to feed in the ſtubble. Though very fond of corn, they are often obliged to content themſelves with wild berries and acorns. In confinement, the female neither lays ſo many eggs, nor hatches and rears her brood with ſo much care and vigilance as in the fields. In a mew ſhe will very rarely diſpoſe her eggs in a neſt, or ſit on them at all; and the domeſtic hen is uſually entruſted with the charge of incubation and rearing the young. The wings of the pheaſant are very ſhort, and ill adapted for conſiderable flights. As the cold weather approaches, theſe birds begin to fly at ſunſet among the branches of oak trees for rooſting during the night; and this they do more frequently as the winter advances, and the trees loſe their foliage. The male birds at theſe times make a noiſe, which they repeat three or four times, and which the ſportſmen call *coketing*. The hens on flying up utter one ſhrill whiſtle, and then are ſilent. Poachers avail themſelves of theſe notes, and, unleſs the woods are ſtrictly watched, ſecure the birds with the greateſt certainty. The crowing of the males, which begins in the firſt week of March, may be heard at a conſiderable diſtance. During the breeding ſeaſon, the cocks will ſometimes intermix with the common hen, and produce a hybrid breed. The pheaſant does not appear to pair, for the female carefully hides her neſt from the male; and where they are in plenty, and food provided for them, the two ſexes are ſaid in general not to feed together. In a domeſtic ſtate, they are ſometimes more or leſs mixed with white, and ſometimes wholly ſo. A variety with a white ring round the neck, and whence called the *ring pheaſant*, is not uncommon in ſome parts of England. This ſpecies rarely occurs in Scotland.

670 *Argus.* *Argus pheaſant.*—Pale yellow, ſpotted with black; face red; hind head creſted, blue; bill yelloviſh; orbits and whiſkers black; front, chin, and throat red; hindhead and nape blue; wings gray, with eye-like ſpots; tail wedged, the colour of the wings; two middle feathers three feet long, with large eye-ſpots at the ſhaft; feet armed; ſize of a turkey. Inhabits Chineſe Tartary and Sumatra. This is a moſt beautiful bird, though its colours are not brilliant. It is with great difficulty kept alive for any time after it has been caught in the woods. It ſeems to have an antipathy to the light, being quite inanimate in the open day; but when kept in a dark place, it appears to be perfectly at eaſe, and ſometimes makes its call, which is rather plaintive, and not harſh like that of the peacock. The fleſh reſembles that of the common pheaſant.

671 *Impeyanus.* *Impeyan pheaſant.*—Creſted, purple, gloſſy green, black beneath; feathers of the neck with a changeable luſtre of gold, copper, and green; tail entire, rufous; larger than a common fowl. Inhabits India, but not plentifully, being brought from the hills in the northern parts of Hindoſtan to Calcutta, as curioſities. Lady Impey attempted, with great probability of ſucceſs, to bring over with her ſome of them to England; but after living in health on board the ſhip for two months, they caught a diſorder from the reſt of the poultry, ſimilar to the ſmallpox, and died in conſequence. They bear cold, but are impatient of heat. The cock was never obſerved to crow, but had a ſtrong hoarſe cackle, not unlike that of a pheaſant.—Deſcribed and figured by Latham. Gallinæ

672 *Criſtatus.* *Creſted pheaſant.*—Brown above; beneath reddiſh-white; vent rufous; head creſted; orbits red, naked; tail wedge-ſhaped, and tipt with yellow; bill and unarmed legs black; feathers of the creſt whitiſh-brown; beneath black; feathers from the hind head to the lower part of the neck have a white ſtreak down the middle; coverts of the wings at the tip and edge white; quill feathers rufous; tail ten inches long; length of the body 22 inches. Native of New Spain. Frequents trees in the neighbourhood of water, and feeds on worms, inſects, and ſerpents. Plate CCCC. Fig. 3.

673 *Pictus.* *Painted pheaſant.*—Creſt yellow; breaſt ſcarlet; ſecondary quill feathers blue; tail wedged; bill, irides, and armed legs, yellow; feathers of the creſt ſilky, and hanging backwards; cheeks naked and fleſh coloured; feathers of the hind head tawny, with black lines, and beneath theſe green ones; back and rump yellow; upper tail coverts long, narrow, and ſcarlet; wing coverts varied with bay and brown; ſcapulars blue; quill feathers brown, with yelloviſh ſpots; tail feathers varied bay and black, and 23 inches long. Female reddiſh brown; yelloviſh brown beneath; legs unarmed; leſs than the common pheaſants; length two feet nine inches and a half. The native country of this beautiful ſpecies is China, where it is called *Kin-ki*. It bears confinement well, and will breed readily in that ſtate. The eggs are redder than thoſe of the common pheaſant, and ſomewhat reſemble thoſe of the Guinea fowl. An inſtance of their breeding with the common pheaſant is mentioned by Buffon. Edwards informs us, that ſome females of this ſpecies, kept by Lady Eſſex, in the ſpace of ſix years gradually gained the male feathers; and we are told, that it is not unuſual for the hen birds, when about four or five years old, to be neglected by the cocks, and gradually to gain the plumage of the males.

674 *Superbus.* *Superb pheaſant.*—Unarmed; rufous, varied with green and blue; caruncles of the front rounded; wattles awl-ſhaped; bill and body red; each ſide of the neck with long feathers turned back; crown green; the hind part with a folding blue creſt; ſhoulders green, ſpotted with white; primary quill feathers blue; tail long, wedged, the feathers varied with blue and red; coverts declined, and of various mixed colours; legs yellow. Inhabits China.

675 NUMIDIA. Gen. 73. NUMIDIA, *Pintado*, or *Guinea Fowl.*

676 Characters. Bill ſtrong and ſhort; the baſe covered with a carunculated cere, receiving the noſtrils; head horned, with a compreſſed coloured callus; tail ſhort, bending down; body ſpeckled.

Common

Gallinæ.

677 *Meleagris.* *Common Guinea hen.*—Caruncles at the gape double, and no gular fold; bill of a reddiſh horn colour; head blue; the crown with a conical, compreſſed, bluiſh red protuberance; upper part of the neck bluiſh aſh, almoſt naked; lower feathered, verging to violet; body black, with round white ſpots; legs gray brown; gular caruncle of the male bluiſh; of the female red. There is a variety with the breaſt white, and another with the body entirely white; ſomewhat larger than the common hen. Inhabits Africa, and is domeſticated in moſt parts of Europe, the Weſt Indies, and America. It formed a part of the Roman banquets, and is now much eſteemed as a delicacy, eſpecially when young. The female lays a great number of eggs, which ſhe frequently ſecretes till ſhe has produced her young brood. The eggs are ſmaller than thoſe of a common hen, and of a rounder ſhape, and are delicious eating. The Guinea hen is a reſtleſs and very clamorous bird, and has a harſh creaking note, which is peculiarly grating and unpleaſant. Like the common domeſtic fowl it ſcrapes the ground, and rolls in the duſt to free itſelf from inſects. During the night it perches on high places, and, if diſturbed, alarms the neighbourhood by its unceaſing cry. In its natural ſtate of freedom it is ſaid to prefer marſhy places. It is eaſily tamed, but often abandons its young.

678 TETRAO.

Gen. 74. TETRAO.

679 Characters. Near the eyes, a ſpot which is either naked, or papillous, or rarely covered with feathers.

The birds of this genus have a ſtrong convex bill; grouſe, partridges, and quails, agree in having a ſhort convex bill. The grouſe chiefly inhabits the colder regions, and is diſtinguiſhed by ſmall noſtrils, hid under the feathers; an acute tongue; ſtrong feet; and a pretty long tail. Partridges and quails are leſs in ſize; have a ſhort tail; and their noſtrils covered above with a callous prominent margin. They inhabit the temperate and even the warmer climates. The tinamous are a tribe peculiar to Guiana, and approach the pheaſant in manners. Their bill is longer and obtuſe at the apex; the noſtrils are placed in the middle; their gape is very wide; the throat thinly covered with feathers; the tail very ſhort; the back-toe ſhort, and uſeleſs for running. The female is larger than the male.

680 *Grouſe.* A. *Spot over the eyes naked; legs downy. Grouſe.*

681 *Urogallus.* *Wood grouſe, cock of the wood*, or *capercailzie*.—Tail rounded; arm-pits white; bill horn colour; ſpot above the eyes ſcarlet; irides hazel; noſtrils covered with ſhort feathers; feathers of the chin black, longer; head and neck cinereous, with fine tranſverſe black lines; body bay, with blackiſh lines above; breaſt blackiſh green; belly and vent black, varied with white; tail feathers 18, each ſide ſpotted with white; legs robuſt and brown; toes pectinated at the edge. Of the female the bill is duſky; chin red; body with alternate red and black tranſverſe lines above; breaſt with a few white ſpots, the lower part orange; belly ſpotted with pale orange and black, the feathers tipt with white; ſhoulders black, the feathers edged with black and pale tawny, and tipt with white; tail ruſty, barred with black, and tipt with white. In ſize, this ſpecies is little inferior to a turkey, and ſometimes weighs 12 or 13, but more frequently ſeven or eight pounds. The male is two feet nine inches, and the female two feet two inches long. Inhabits the mountainous and woody parts of Europe and northern Aſia. It is not uncommon in the pine-foreſts of Normandy, in Ruſſia and Siberia, in Italy, and ſeveral parts of the Alps. In Scotland and Ireland it is nearly extinct. It feeds on the berries of the juniper and vaccinium, and on the ſeeds of the pine tribe and other trees. It is a ſolitary bird, except in the ſeaſon of love, when, in the beginning of February, perched on the top of a tree, it calls the females about it with a loud voice, its tail expanded, its wings hanging down to its feet, its neck ſtretched out, and the feathers of its head erected. The female builds on the ground among moſſes, and lays from eight to ſixteen eggs. The fleſh of this ſpecies is much eſteemed, and its eggs are accounted preferable to thoſe of every other bird. They are white, ſpotted with yellow, and larger than thoſe of the common hen. The young follow the hen as ſoon as they are hatched, and ſometimes with part of the ſhell attached to them. Gallinæ.

682 *Tetrix.* *Black game, black grouſe*, or *black cock*.—Violet black; tail forked; ſecondary quill feathers white towards the baſe; bill black; body ſhining glaucous-black; wing coverts black-brown; four firſt quill feathers black, the reſt white at the baſe; tail feathers from 16 to 18, black; legs black-brown; toes pectinated. Female leſs; the weight of an old cock is nearly four pounds, but that of the female is not often more than two. Length about 23 inches: there are ſeveral varieties. Inhabits mountainous and woody parts of Europe. In Britain it is chiefly confined to the northern parts of the kingdom, and eſpecially to the Highlands of Scotland; population and culture having driven them from the ſouth, except in a few of the more wild uncultivated parts, as in the New Foreſt in Hampſhire, Dartmoor and Sedgemoor in Devonſhire, and the heathy hills in Somerſetſhire contiguous to the latter. It alſo occurs in Staffordſhire, North Wales, and the north of England. It feeds principally on the tops of heath and birch, except when the mountain berries are ripe, at which time it devours billberries and craneberries with the greateſt voracity. In the month of April the male places himſelf on an eminence, at morning dawn, and invites the females by crowing and clapping his wings. The males are polygamous, and fight deſperately for the females. They afterwards aſſociate peaceably in ſmall packs, are fond of woody, heathy, and mountainous ſituations; but occaſionally viſit the corn fields in autumn, retiring wholly to woods in the winter, and perching on trees. It is ſomewhat remarkable that they are killed by eating cherries or pears. The female forms an artleſs neſt on the ground, and lays ſix or eight eggs, of a dull yellowiſh white colour, marked with numerous very ſmall ferruginous ſpecks, and with blotches of the ſame towards the ſmaller end. The young are hatched very late in ſummer. The young males quit their parent in the beginning of winter, and keep together in flocks of ſeven or eight till the ſpring. They do not acquire their male garb till towards the end of autumn, when the plumage gradually changes to a deeper colour, and aſſumes that of a bluiſh-black, which it afterwards retains.

683 *Lagopus.* *Ptarmigan, white grouſe*, or *white game*.—Cinereous; toes downy; quill feathers white; tail feathers black, tipt

Gallinæ. tipt with white, the middle ones white; body, in ſummer cinereous, varied with white and brown, in winter nearly all white; but in all ſeaſons the lateral tail feathers are black, tipt with white; legs and toes covered with a thick wool like a hare's. From 14 to 15 inches long. Inhabits the Alpine parts of Europe and Siberia. In this country it is met with only on the ſummits of our higheſt hills, chiefly in the Highlands of Scotland, and ſometimes, but rarely, on the lofty hills of Cumberland and Wales. As the ſnow melts on the ſides of the mountains, it conſtantly aſcends till it gains the ſummit, where it forms holes and burrows in the ſnow. Theſe birds pair at the ſame time with the red grouſe; the female lays eight or ten white eggs, ſpotted with brown, not in any regular neſt but on the ground. In winter they fly in flocks, and are ſo little accuſtomed to the ſight of man, that they are eaſily ſhot, or taken in a ſnare. They feed on the wild productions of the hills, as the buds of trees, the young ſhoots of pines, the heath, crow-berry, rhododendron, &c. They run ſwiftly, fly heavily, are impatient of the ſun and wind, and are unſuſceptible of domeſtication. The fleſh of the young is accounted a great delicacy. That of the full-grown birds has ſometimes a bitter, but not unpalatable taſte: it is alſo dark coloured, and, according to Buffon, approaches in flavour to that of the hare.

684 *Albus.* *White grouſe.*—Orange, varied with black bands and white blotches; toes downy; tail feathers black, tipt with white, the middle ones entirely white; bill black; belly and legs white; claws broad and flat. Upwards of 16 inches long. Inhabits the woods of Europe and Aſia, and, like the preceding, grows white in winter.

685 *Cupido.* *Pinnated grouſe.*—Back of the neck with ſupplemental wings, which are wanting in the female. The male is ſmaller than a partridge. Inhabits North America; feeds chiefly on acorns; and at ſunriſe erects his neck wings, and ſings for the ſpace of half an hour.

686 *Bonaſia.* *Hazel grouſe.*—Tail feathers cinereous, with black ſpots and a black band, except the two middle ones. Fourteen inches long. Inhabits the hazel woods of Europe; feeds on catkins; when terrified, erects the feathers of the crown.

687 *Attagen* or *Scoticus.* *Red grouſe*, or *moorcock.*—Tranſverſely ſtreaked with rufous and blackiſh; ſix outer tail-feathers blackiſh on each ſide; caruncle on the eyebrows lunated and ſcarlet; greater quill-feathers brown; tail feathers ſixteen, the four middle ones the colour of the back, the reſt blackiſh. Length fifteen inches; weight about nineteen ounces. This ſpecies is only to be met with in the extenſive uncultivated waſtes that are covered with heath, particularly the moſt mountainous ſituations, having been driven from the ſouth by cultivation. It ſtill occurs in the mountains of Wales, and in the moorlands of Yorkſhire and the north of England, but is no where ſo plentiful as in the Highlands of Scotland, and in the waſte moors of North Britain, in general. It is alſo found in the Weſtern iſlands, and in the mountains and bogs of Ireland; but ſeems to be unknown on the continent of Europe, thoſe mentioned by Buffon as natives of France, Spain, Italy, &c. either forming a diſtinct ſpecies, or at leaſt a variety. Linnæus did not ſeem to be acquainted with it, and Gmelin gave it as a variety of the ptarmigan. The red grouſe never reſort to woods, but confine themſelves wholly to the open moors, feeding on the mountain and bog berries; and, in defect of theſe, on the tops of the heath. They pair in the ſpring; and the female lays from 8 to 14 eggs, much like thoſe of the black grouſe, but ſmaller, on the ground. The young keep with the parent birds till towards winter, and are called a *pack*, or *brood*. In November they flock together in greater numbers, ſometimes to the amount of thirty or forty, and are then extremely ſhy and difficult to be ſhot. Gallinæ.

B. *Orbits granulated; legs naked.*

688 *Partridge.* a. *Legs of the male armed with a ſpur. Partridge.*

689 *Rufus.* *Greek*, or *red partridge.*—Bill and legs blood-red; chin white, ſurrounded with a black band, and ſpotted with white; feathers of the ſides with a double black ſtripe; tail feathers fourteen, cinereous, the five outer rufous for the laſt half. Rather larger than the next ſpecies. Inhabits various parts of ſouthern Europe, Aſia, Africa, and the Grecek iſlands. A variety called the *Guernſey*, or *red-legged partridge*, has ſometimes been found on the Suffolk or Norfolk coaſts. It is diſtinguiſhed by a ſingle black ſtripe on the feathers of the ſides, and ſixteen tail feathers, of which the five outer are rufous on each ſide. The red partridge frequently perches on a tree, and will breed in confinement, which the common one is never known to do.

690 *Perdix.* *Common partridge.*—A naked ſcarlet ſpot under the eyes; tail ferruginous; breaſt brown; legs white; face yellowiſh; cap and neck waved aſh; quill feathers brown, with ferruginous bands; tail feathers eighteen, lower part of the breaſt with two cheſnut ſpots. Several varieties of this ſpecies are enumerated by ornithologiſts, but moſt of them appear to be accidental. Length about 13 inches; weight 15 ounces. Inhabits Europe and Aſia, though chiefly in temperate regions, the extremes of heat and cold being equally unfavourable to it. They are nowhere in greater plenty than in this iſland, where, in their ſeaſon, they contribute to our moſt elegant entertainments. They haunt corn fields, and are never found at any diſtance from arable land. They pair early in the ſpring; and the female is very prolific, laying from 12 to 20 eggs. It makes no neſt, but ſcrapes a ſmall hole in the ground, and throws into it a few contiguous fibres, on which to depoſit the eggs. The old birds ſit very cloſe on the latter when near hatching. The incubation laſts three weeks, and the young birds learn to run as ſoon as hatched, frequently with part of the ſhell ſticking to them. It is no uncommon thing to introduce partridges eggs under the common hen, who hatches and rears them as her own: but, in this caſe, the young birds require to be fed with the larvæ of ants, which are their favourite food, and without which it is almoſt impoſſible to rear them. They likewiſe eat inſects, and, when full grown, feed on all kinds of grain and young plants. "The affection of the partridge for her young (ſays Mr Bewick), is peculiarly ſtrong and lively; ſhe is greatly aſſiſted in the care of rearing them by her mate: they lead them out in common, call them together, point out to them their proper food, and aſſiſt them in finding it by ſcratching the ground with their feet; they frequently ſit cloſe by each other, covering the chickens with their wings like the hen. In this ſituation they are not eaſily fluſhed; the ſportſman, who is attentive to the preſervation of his game, will carefully avoid giving any diſturbance to a

Gallinæ. scene so truly interesting; but should the pointer come too near, or unfortunately run in upon them, there are few who are ignorant of the confusion that follows: the male first gives the signal of alarm by a peculiar cry of distress, throwing himself at the same moment more immediately into the way of danger, in order to deceive or mislead the enemy; he flies, or rather runs, along the ground, hanging his wings, and exhibiting every symptom of debility, whereby the dog is decoyed, in the too eager expectation of an easy prey, to a distance from the covey; the female flies off in a contrary direction, and to a greater distance, but returning soon after by secret ways, she finds her scattered brood closely squatted among the grass, and, collecting them with haste, she leads them from the danger, before the dog has had time to return from his pursuit."

691 *Quail.*

b. *Legs without a spur. Quail.*

692 *Viridis.* *Green quail.*—Green; bill and legs reddish; wings chesnut, speckled with black; bill a little bent at the tip; hind toe unarmed; tail and vent black. Between 11 and 12 inches long.

693 *Californicus.* *Californian quail.*—Lead colour; crown with an upright crest; throat black, edged with white; belly yellowish brown, with black crescents. The female wants the black throat and whitish margin. Larger than the common quail. Inhabits California.

694 *Suscitator.* *Noisy quail.*—Varied with yellowish, rufous, black, and gray; bill longer than in others of the genus. A very clamorous bird, which inhabits the woods in Java.

695 *Sinensis.* *Chinese quail.*—Body spotted with gray; throat black, with a white arch. From four to six inches long. Inhabits China and the Philippine isles, and is carried alive by the Chinese, in the winter, between their hands, for the purpose of warming them.

696 *Coturnix.* *Common quail.*—Body spotted with gray; eyebrows white; tail feathers with a ferruginous edge and crescent; bill black; head black, varied with rufous; a yellowish streak down the middle of the crown and neck; feathers of the neck rusty brown, varied with gray; the shafts with a longitudinal yellowish streak; body beneath dirty ochreous; throat and breast reddish; quill feathers gray-brown, with rufous bars on the outside; tail feathers twelve, with reddish and black lines; legs brownish. Seven inches and a half long. Inhabits Europe, Asia, and Africa. When these birds migrate to and from the north, they are found in prodigious quantities in all the islands of the Archipelago. One hundred thousand, it is said, have been taken in one day on the west coast of the kingdom of Naples. A small portion only extend their flight to this country. With us they appear about the beginning of May, in our cultivated champaign districts, though not in such numbers as formerly. On their first arrival, the males are constantly uttering a whistling note, thrice successively repeated, which being imitated by a whistle or quail-call, they are easily enticed into a net. Before the revolution, great quantities used to be sent alive from France to the London market. In confinement they fatten, and seem to lose much of their fierce and pugnacious disposition. The female deposits eight or ten yellowish eggs, blotched, or spotted with dusky, on the bare ground, and usually with us among green wheat. The young birds follow the mother as soon as hatched, but do not continue long together; for they are scarcely grown up when they separate, or, if kept together, they fight obstinately, and frequently destroy one another. From this quarrelsome disposition it was, that the Greeks and Romans used them as game cocks; and that the Chinese, and some of the Italians are, at this day, addicted to the diversion of quail-fighting. After feeding two quails very highly, they place them opposite to each other, and throw in a few grains of seed between them, when the birds rush on each other with the utmost fury, striking with their bills and heels till one of them yields. Gallinæ.

C. *Orbits with a few feathers; legs naked, four-toed, and unarmed. Tinamous.* 697 *Tinamus.*

698 *Guianensis.* *Cayenne tinamous.*—Bill and legs brown; back ashy-brown, varied with blackish stripes; chin cinereous; belly pale orange. Eleven inches long. Inhabits Cayenne and Guiana.

699 *Major.* *Great tinamous.*—Legs yellowish-brown; bill black; crown rufous; body olive; back and tail with black spots. Eighteen inches long. Inhabits the woods of South America; roosts on the lower branches of trees; feeds on worms, insects, seeds and fruits; builds twice a year, at the root of a large tree, and lays from twelve to fifteen green eggs.

700 *Soui.* *Little tinamous.*—Bill and legs yellow; head and neck black; body brown above, rufous beneath; chin mixed with white; quill feathers brown. Nine inches long. Inhabits Guiana. Builds an hemispherical nest in the branches of trees.

ORDER VI. PASSERES.

701 PASSERES.

702 Characters. BILL conical, pointed; nostrils oval, pervious, and naked.

The birds of this order have the feet formed for walking or hopping. They live, some at the time of breeding, and others constantly, in monogamy. Some which feed on the seeds of plants have a short bill, others that live on insects and worms are generally furnished with a longer bill. They nestle on trees, in bushes, in houses, and on the ground. They often build very artificial nests, and feed their young with their bill. This order includes all the singing birds; the males are the songsters. They are for the most part eatable.

Gen. 75. COLUMBA, *Pigeon.*

703 COLUMBA.

704 Characters. BILL straight, descending towards the tip; nostrils oblong, and half covered with a soft tumid membrane.

The birds of this genus have a weak and slender bill, short feet, and many of them red toes, divided to their origin. They extend their residence even to the arctic regions. They drink much, and not at intervals like other birds, but by continuous draughts like quadrupeds. Their note is plaintive or mournful. They form the connecting link between this and the preceding order; but are more nearly related to the passerine tribes, in being monogamous, in caressing each other by their bills, in the male and female alternately hatching, in both joining to feed the young, in laying but few eggs, and in their nidification. Of upwards of seventy species which belong to this genus, only five or six are natives of

Passeres. of Great Britain. The eggs of all the species are white.

A. *Tail even and moderate.*

705 Oenas. *Common*, or *stock pigeon*, or *stock dove*.—Bluish; neck above glossy green; double band on the wings, and tip of the tail blackish; throat and breast claret colour; claws black. Length 13 or 14 inches; weight 11 ounces. Inhabits Europe and Siberia; is wild in many places, but is kept in pigeon-houses every where, and is the parent stock whence all the varieties of the domestic pigeon are derived, and is on that account called the *stock-dove*. It builds in towers, in caverns of rocks, and in cliffs in unfrequented islands. On the approach of winter, it migrates southward. It is gregarious; lays two eggs, and breeds several times in the year.

706 Domestica. *Domestic pigeon*.—Cinereous; rump white; band on the wings, and tip of the tail blackish. The varieties are, however, very numerous, and not easily reducible to distinct descriptions. Some of the more remarkable are, the *rock*, *Roman*, *Barbary*, *jacobine*, *shaker*, *tumbler*, *carrier*, *horseman*, and *turner* pigeons. From 14 to 15 inches long. Inhabits and is domesticated in almost every part of Europe and Asia, and lays from nine to 11 times a year. Though only two eggs are laid at a time, at the expiration of four years, the produce and descendants of a single pair may amount to nearly 15,000. A composition of loam, old rubbish and salt, will not only entice birds of this species to remain in a required spot, but will even decoy those belonging to other places, and is therefore prohibited by law. The carrier pigeon is easily distinguished from the other varieties, by a broad circle of naked white skin round the eyes, and by its dark blue or blackish colour. The bird is conveyed from its home to the place whence the information is intended to be sent; the letter is tied under its wing, and it is let loose. From the instant of its liberation, its flight is directed through the clouds, at an amazing height, to its home, and it darts onward in a straight line to the very spot from which it was taken, by virtue of some faculty or instinct which it is very difficult to explain. To measure their speed with some degree of exactness, a gentleman some years ago, on a trifling wager, sent a carrier-pigeon from London, by the coach, to a friend at St Edmund's-bury, and along with it a note, requesting that the pigeon, two days after its arrival there, might be thrown up precisely when the town-clock struck nine in the morning. This was accordingly done, and the pigeon arrived in London, and flew into the Bull Inn in Bishop's-Gate Street, at half an hour past eleven o'clock of the same morning, having flown 72 miles in two hours and a half.

707 Coronata. *Great crowned Indian pigeon*.—Bluish; cinereous above; orbits black; crest; shoulders ferruginous. Size of a turkey. Inhabits New Guinea.

708 Cristata. *Lesser crowned pigeon*.—Eyelids white; hind head with a red gold crest; breast and belly violet; back, rump, and tail green; legs yellow; hind toe unarmed. Size of the common pigeon. Inhabits Malacca.

709 Palumbus. *Ring dove*.—Cinereous; tail feathers black on the hind part; primary quill feathers whitish on the outer edge; neck white on each side; bill yellowish; cere red and scurfy; irides yellowish; head, back, and wing coverts bluish; rump and throat pale ash; breast claret colour; belly and vent whitish; neck above and at the sides green gold, with a white crescent on each side; feet rough as far as the toes. Weighs about 20 ounces; length eight inches. Inhabits Europe, and rarely Siberia. From its living in woods, and building in trees, it is not uncommonly called *wood pigeon*. It seems to be originally a native of this island, and probably migrates no farther than from the northern to the southern parts of it. Early in spring it begins to pair, at which time the male is observed to fly in a singular manner, alternately rising and falling in the air. It forms a nest of a few small sticks loosely put together. Its common food is grain and seeds of all kinds, acorns and beech-nuts, and in default of these, turnip-greens, and young clover, or even green corn, and ivy berries. Various attempts to domesticate this species have proved unsuccessful. Passeres.

710 Viridis. *Green turtle*.—Brass-green above, purple-violet beneath. Near eight inches long. Inhabits Amboina.

711 Turtur. *Turtle dove*.—Tail feathers tipt with white; back gray; breast flesh coloured; a spot of black feathers, tipt with white, on each side of the neck; bill brown; irides yellow; crown olive-ash; front and chin nearly white; scapulars and coverts reddish-brown, spotted with black; throat and breast claret coloured; belly and vent white; two middle tail feathers dusky brown, the end and exterior side of the outermost feathers white. Subject to several varieties. About 12 inches long. Inhabits Europe, China, and India. Visits the southern parts of England in the spring, and leaves them in the beginning of September. Is very shy and retired, breeding in thick woods, and nestling on high trees. Is very destructive to fields of peas.

B. *Tail long and wedged.*

712 Migratoria. *Passenger pigeon*.—Orbits naked and sanguine; breast rufous. From 15 to 16 inches long. Inhabits North America, migrating southward in December in quest of food. The multitudes which pass in hard winters are truly astonishing, as they fly by millions in a flock, and literally intercept the light of the sun. As soon as one flock has passed, another succeeds; and these movements sometimes continue for three days without intermission. Their favourite food is acorns; but they not only eat the fruit of various kinds of trees, but also corn and rice, of which they are very unsparing in the course of their passage.

713 Melanoptera. *Black-winged pigeon*.—Body livid; wings black. Inhabits Chili.

714 Marginata. *Marginated turtle*.—Breast red; tail feathers tipt with black, and edged with white; bill horny; irides rufous; front and chin reddish brown; lores white; hind head bluish-ash colour; a black spot under the ears; body above brown; shoulders spotted with black; rump cinereous; throat and breast rosy; two middle tail feathers blackish; the rest ash colour. Ten inches long. Native of America. Plate CCCCI. Fig. 1.

715 Bantamensis. *Bantam pigeon*.—Orbits naked and flesh coloured; neck, breast, and flanks, waved with black and white. Size of the wry-neck. Inhabits Java.

Gen. 76. ALAUDA, *Lark*. 716 ALAUDA.

717 Characters. Bill cylindrical, subulated, straight; the mandibles equal, and a little gaping at the base; tongue bifid; hind claw straight, and longer than the toe.

Paſſeres.

718 *Arvenſis.*

Field, or *ſky lark*.—Outer webs of the two middle tail feathers white, middle ones ferruginous on the inner ſide; body above varied with blackiſh, reddiſh-gray, and whitiſh; reddiſh-white beneath; bill and legs black; throat ſpotted with black. A variety ſometimes occurs that is wholly white, another which is black-brown, and a third, which is found in Ruſſia, and diſtinguiſhed by its very long legs. This well-known ſpecies is about ſeven inches long, and inhabits Europe, Aſia, and Africa. It is moſt common in the open and upland cultivated diſtricts in which corn abounds, and is rarely ſeen on extended moors at a diſtance from arable land. The neſt is placed on the ground, among graſs or corn, and is formed of dry graſs and other vegetable ſtalks, and lined with fine dry graſs. The eggs are generally four, rather larger than thoſe of a tit-lark, and of a dirty white, blotched and ſpotted with brown. The ſky lark begins to breed in May, and will lay as late as September, if its firſt neſts are deſtroyed. The incubation laſts a fortnight, and two broods are uſually produced in the courſe of the year. When hatched, the mother watches over them with the moſt tender ſolicitude and affection. They are firſt fed with worms and inſects; but after they are grown up, they live chiefly on ſeeds, herbage, and moſt other vegetable ſubſtances. They are eaſily tamed, and become ſo familiar as to eat off the table, and even alight on the hand. The lark becomes tuneful early in ſpring, and continues ſo during the ſummer. His ſong is chiefly heard in the morning and evening; and he is one of thoſe few birds that chaunt their mellow notes on the wing. We need ſcarcely remark, that he mounts almoſt perpendicularly, and by ſucceſſive ſprings into the air, where he hovers at a great height, and whence he deſcends in an oblique direction, unleſs threatened by ſome ravenous bird of prey, or attracted by his mate, when he drops down to the ground like a ſtone. When he firſt leaves the earth, his notes are feeble and interrupted, but, as he riſes, they gradually ſwell to their full tone. Theſe birds ceaſe their ſtrains in winter, when they aſſemble in flocks, grow fat, and are taken in multitudes by the bird-catchers. Four thouſand dozen have been taken in the neighbourhood of Dunſtable, between September and February; and Kepler informs us, that the exciſe on larks alone produces about 900l. a year to the city of Leipſic, whoſe neighbourhood is celebrated for larks of a peculiarly delicate flavour.

719 *Pratenſis.*

Tit lark.—Greeniſh-brown, outer webs of the two outermoſt tail feathers white; eyebrows with a white line; bill black; body white beneath; breaſt ochreous yellow, with oblong black ſpots; legs yellowiſh. Length nearly five inches and three quarters. Inhabits Europe, and is very common in moſt parts of this iſland, though it ſeems partial to barren ſituations, and occurs both in mountainous and low ſwampy places. In Scotland, it is almoſt the only bird which frequents the extenſive heath tracts on which it breeds. It has a fine note, and ſings either ſitting in trees, or on the ground.

720 *Minor.*

Leſſer field lark.—Reddiſh-brown, ſpotted beneath; chin and belly white; throat and breaſt obſcure yellow; legs browniſh; wing coverts edged with white; quill feathers duſky, the outer web of the firſt edged with white, the others with yellowiſh-green; hind claw ſhort, and ſometimes hooked. Somewhat larger than the preceding, with which it has been often confounded. It viſits this country in ſpring, but is rarely ſeen till the beginning of May; is not plentiful, and chiefly affects encloſed ſituations. From the beginning of May till July, it may be ſeen mounting in the air in a fluttering manner, at the ſame time uttering a twittering note, and then deſcending to ſome neighbouring tree with motionleſs wing and the tail thrown up. It then ſings ſweetly, but never when riſing. It generally neſtles in the high graſs or green wheat, and lays four eggs of a dirty bluiſh white, thickly blotched, and ſpotted with purpliſh brown.

Paſſeres.

721 *Arborea.*

Wood lark.—Head ſurrounded by a white annular fillet; body varied like the *arvenſis;* legs fleſh coloured. Weighs about eight drams; length ſix inches. Inhabits Europe and Siberia, and is met with, though ſparingly, in various parts of Britain. It ſings delightfully on wing, but rarely when ſitting on the ground, though ſometimes when perched on a tree. Its ſong is much more melodious than that of the ſky lark, but does not conſiſt of ſo great a variety of notes; but then it frequently ſings in the night, and through moſt of the year, except in the months of June and July. It does not aſcend in the air perpendicularly, and continue hovering and ſinging in the ſame ſpot, like the ſky lark, but will ſometimes ſoar to a great height, and keep flying in large irregular circles, ſinging with little intermiſſion; and will thus continue in the air for an hour together. It is an early breeder, the eggs being ſometimes found in the neſt in the beginning of April.

722 *Rubra.*

Red lark.—Brown; orbits blackiſh; two outermoſt tail feathers white. About the ſize of the ſky lark. Inhabits North America, and is ſometimes found near London.

723 *Malabarica.*

Malabar lark.—Wings and tail dirty brown colour, with reddiſh edges; bill black; creſt long, brown and tipt with white; chin and belly reddiſh white; feathers of the back, and coverts of the wings, brown; the edge reddiſh towards the tip, and marked with a white ſpot; legs reddiſh. Five inches and a half long. Native of Malabar.

Plate CCCCI. Fig. 3.

724 *Triviali.*

Graſshopper lark, or *graſshopper warbler*.—Tail feathers brown, the outer one half white, the ſecond with a white wedged tip; wings with two whitiſh lines; bill duſky; legs whitiſh; lores white; body greeniſh-brown above, feathers duſky in the middle, yellowiſh-white beneath; breaſt dirty white; tail longiſh, and ſomewhat wedged. Length five inches and a half; weight about three drams and a quarter. Inhabits Europe. Though not plentiful in Britain, it perhaps appears to be much leſs ſo from its extreme ſhyneſs, and its habit of concealing itſelf among furze and thick hedges. Its ſingular note reſembles the chirping of the larger ſpecies of crickets.

725 *Obſcura.*

Rock lark.—Olive brown, varied with blackiſh; yellowiſh beneath; ſides of the neck and breaſt with browniſh ſpots; outermoſt tail feathers obliquely half whitiſh, ſecond whitiſh at the tip. Upwards of ſeven inches long. In its ſong, manner of flying, and general habits, is much allied to the tit-lark. Inhabits ſome of the rocky ſhores of England, and ſeems to ſubſiſt chiefly on marine inſects.

726 *Nemoroſa.*

Leſſer creſted lark.—Tail feathers black, the two outermoſt white on the outer edge; head creſted; legs red; body pale brown. Inhabits Europe and Siberia, and

is

Passeres. is common in Yorkshire. It is a solitary bird, and builds in woods and thickets.

727 Calandra. *Calandre lark.*—Outermost tail feathers totally white without, second and third tipt with white; pectoral band brown. Seven inches and a quarter long. Inhabits Italy and Russia. Builds on the ground. Sings sweetly, and imitates the notes of other birds.

728 STURNUS. Gen. 77. STURNUS, *Stare*, or *Starling*.

729 Characters. Bill subulate, angular, depressed, somewhat blunt; the upper mandible entire, and somewhat open at the edges; nostrils surrounded with a prominent rim; tongue notched and pointed.

730 Vulgaris. *Common stare*, or *starling*.—Bill yellowish; body black, with white dots; quill feathers and tail dusky; the former edged with yellow on the outer side, the latter with dirty green; lesser coverts edged with yellow, and slightly glossed with green; legs reddish-brown. Male shining with purple, green, and gold. There are several varieties. Weight about three ounces; length eight inches and three quarters. Found in almost every part of the old continent. It breeds in the hollows of trees or rocks, among rubbish, or in old towers, and sometimes appropriates the nest of another bird. Myriads of this species breed among the rocks in the Orkney islands, and in winter feed on the *cancer pulex*. Their general food is insects, earth-worms, seeds, berries, &c. They migrate in flocks, and are very noisy. In confinement it may be taught to mimic various sounds, and even to speak. So attached are they to society, that they not only join those of their own species, but also birds of a different kind; and are frequently seen in company with redwings, fieldfares, and even with pigeons, jackdaws, and owls. They chatter much in the evening and morning, both when they assemble and disperse.

731 Cinclus. *Water-ouzel*, or *crake*.—Black; breast white; chin white; tail black; belly ferruginous; legs pale blue before, black behind. Length seven inches and a half. Inhabits Europe and northern Persia. Is shy and solitary, and rarely to be seen, except on the banks of rivers and streams of water. It is not unfrequent in the mountainous parts of Scotland and Wales, and in some districts in Devonshire. In these places it breeds, and continues the whole year. The nest is very large, formed externally of moss and water plants, and lined with dry oak leaves, resembling that of the wren, with a dome or covering. It is usually placed in some mossy bank, impending on the water, and contains five or six eggs of a transparent white. "A pair of these birds, says Mr Montagu, which had for many years built under a small wooden bridge in Caermarthenshire, we found had made a nest early in May. It was taken, but had no eggs, although the bird flew out of it at the time. In a fortnight after they had completed another nest in the same place, containing five eggs, which was taken; and in a month after we took a third nest under the same bridge with four eggs; undoubtedly the work of the same birds, as no others were seen about that part. At the time the last was taken, the female was sitting, and the instant she quitted her nest, plunged into the water, and disappeared for a considerable time; at last she emerged at a great distance down the stream. At another time we found a nest of this bird in a steep projecting bank over a rivulet clothed with moss. The nest was so well adapted to the surrounding materials, that nothing but the old bird flying in with a fish in its bill would have led to a discovery. The young were nearly full feathered, but incapable of flight, and the moment the nest was disturbed, they fluttered out and dropt into the water, and to our astonishment, instantly vanished; but in a little time made their appearance at some distance down the stream; and it was with difficulty two out of five were taken, as they dived on being approached.—The aquatic habits of this bird have not escaped the notice of ornithologists, some of whom speak of their flying under water. If, indeed, the wings being in motion can be called flying, it certainly does; but this is no more than is common to all diving birds, which, in pursuit of fish, or to escape danger, always use their wings to accelerate their motion. In this case, however, the wings are not extended, for that would retard their progress; but it is affected by short jerks from the shoulder joint. Whether these birds can run at the bottom of the water, as some have asserted, is much to be doubted, as it is requisite all birds should use a considerable exertion to keep them under water, by reason of their specific gravity being so much less. It is certainly a most curious and singular circumstance, that a bird, not apparently in the least formed for diving, should pursue its prey under water, living chiefly on small fish and aquatic insects. It cannot, however, swim on the surface."

732 Viridis. *Green stare*.—Green above; bluish beneath; a tuft of black and white feathers on the front and chin. Inhabits China.

733 Caruculatus. *Wattled stare*.—Bill and legs black; a pendent orange wattle at each angle of the mouth. Male black, with the back and wing-coverts ferruginous. Female rusty-brown, with very small wattles. Ten inches long. Inhabits New Zealand.

734 Collaris. *Collared stare*.—Blackish-brown, spotted with brown; flanks rufous; chin white, spotted with brown. Size of the field fare. Inhabits Switzerland and Italy. Is solitary, wags its tail, feeds on seeds, sings with a very weak voice, and builds in the ground, or in clefts of rocks.

735 TURDUS. Gen. 78. TURDUS, *Thrush*.

736 Characters. Bill somewhat straight; upper mandible a little bending and notched near the point; nostrils naked or half covered with a small membrane; mouth ciliated with a few bristles at the corners; tongue jagged.

Most of the numerous species of this genus feed on berries, especially those of the juniper; and many of them are excellent songsters.

737 Viscivorus. *Missel thrush*.—Back brown; neck spotted with white; bill yellowish; body whitish-yellow beneath, with spots brown on the chin and white beneath; quill and tail feathers brown, with paler edges; the three outermost tipt with white; legs yellow; claws black. Weight near five ounces; length 11 inches. Inhabits the woods of Europe. It is by no means plentiful in Britain, and appears to be less so in winter. It begins to sing in January if the weather is mild, but ceases as soon as the thermometer sinks below 40 degrees. About

Paſſeres. bout the middle of March it makes a neſt in the fork of ſome tree, eſpecially if covered with lichen, and ſeems partial to the apple tree, frequenting orchards more than other ſituations in ſpring, and never building in a buſh. The neſt is made of moſſes, lichens, and dry leaves, lined with withered graſs, and fortified on the outſide with ſmall ſticks. The eggs are four or five, rarely ſix; of a fleſh colour, and marked with deep and light ruſt-coloured ſpots. The ſong of this bird is louder than that of the throſtle, and ſuperior to it. Perching on the uppermoſt branch of a tall tree, the miſſel thruſh ſings when its mate is making the neſt, and during incubation; but becomes ſilent as ſoon as the young are hatched, and is no more heard till the beginning of the new year. If the young are taken, its ſong continues as before, and if the female is deſtroyed, it continues in ſong the whole ſummer. The miſſel is very bold during the breeding ſeaſon, driving other birds from the neighbourhood of its neſt, and even attacking the magpie and jay. Its food is inſects and berries, particularly thoſe of the miſſetoe, which are frequently propagated after paſſing through the digeſtive organs of this bird.

738 *Pilaris.* *Field fare.*—Tail feathers black, the outermoſt at the inner edge tipt with white; head and rump hoary; bill yellowiſh, tipt with black; crown and neck olive-aſh above; body bay above; quill feathers cinereous; throat and breaſt yellowiſh-rufous; belly and vent whitiſh; legs blackiſh. Subject to three or four varieties. Length 10 inches; weight four ounces. Inhabits Europe, Syria, and Siberia. Arrives in Britain, in large flocks, about Michaelmas, and leaves us in March. It feeds on the berries of the holly, thorn, juniper, *empetrum nigrum*, *arbutus alpina*, &c. as well as on worms and inſects. In very ſevere weather they migrate farther ſouth, if not prevented by a ſudden fall of ſnow. In 1798, when a very heavy ſnow fell on the northern and caſtern parts of England, prodigious flocks of field fares appeared in the weſt; but as that part of the iſland alſo was ſoon covered with ſnow, which lay on the ground for a conſiderable time, they became too weak to advance farther ſouth, and thouſands were picked up, ſtarved to death. Though it builds in trees, and ſits on them in the day time, it always rooſts on the ground. When a perſon approaches a tree that is covered with them, they continue fearleſs, till one at the extremity of the buſh, riſing on its wings, utters a loud and peculiar note of alarm, when they all immediately fly, except one other, which remains till the perſon approaches ſtill nearer, and then it alſo flies off, repeating the note of alarm. Field fares were highly eſteemed by the Roman epicures, who kept them in their aviaries, and fattened them with crumbs of bread, mixed with minced figs. According to Varro and Plutarch, the fleſh was ſometimes bitter.

739 *Iliacus.* *Red wing*, or *wind thruſh.*—Wings ferruginous underneath; eyebrows whitiſh; bill blackiſh; legs pale gray; body gray-brown, whitiſh beneath, with brown ſpots; ſides and inner coverts ferruginous; vent white. Weight nearly two ounces and a half; length eight inches and a half. Inhabits Europe, and is a winter gueſt with us, appearing a few days before the preceding, migrating in vaſt flocks. It breeds in Sweden, Norway, &c. where it inhabits the maple woods, and ſings delightfully from their higheſt tops. It builds in hedges or thickets, and lays ſix bluiſh-green eggs, ſpotted with black. In the ſouthern countries of Europe, it does great injury to the vineyards. Paſſeres.

740 *Muſicus.* *Throſtle* or *ſong thruſh*; *mavis* of the Scotch.—Quill feathers ferruginous at the inner baſe. Reſembles the miſſel in colour, but the inner wing-coverts are yellow, irides hazel, bill brown, and the mouth yellow within. Inhabits the woods in Europe. Weight about three ounces; length nine inches. This well-known ſpecies is generally admired for its ſong. Every wood and grove re-echoes with its notes, which ſometimes vie with thoſe of the miſſel. The throſtle frequently ſings as early as February, if the weather is mild, and in March the female makes its neſt, compoſed of dried graſs and green moſs externally, and plaſtered within with rotten wood, mixed with cow dung or clay, and ſo compactly as to hold water, a circumſtance which, in a rainy ſeaſon, ſometimes proves fatal to the eggs. The latter are four or five, of a blue colour, and ſpotted with black at the larger end. The neſt is ſometimes placed on the ſtump of a tree, very near the ground, or againſt the ſide of a tree, and frequently in a hedge, or ſolitary buſh. Though the throſtle feeds on berries and inſects in general, it is particularly fond of ſhelled ſnails, eſpecially of the *helix nemoralis*, whoſe ſhell it breaks by repeated ſtrokes againſt a ſtone. It is not uncommon to find a great many fragments of ſhells together, as if a number had been conveyed to one particular ſtone for the purpoſe. This ſpecies breeds twice, and ſometimes thrice in the year, and conſequently continues long in ſong. Like the preceding, it is very hurtful to vineyards.

741 *Polyglottus.* *Mocking bird*, or *mimic thruſh.*—Duſky-aſh above; pale aſh beneath; primary quill feathers white on the outer half; bill black; irides yellow; tail four inches long; legs cinereous. Nine inches and a half long. Inhabits the moiſt woods of Virginia, Carolina, Jamaica, &c. In the ſummer is ſeen much more to the northward than in winter. This ſingular ſpecies not only poſſeſſes muſical and ſolemn notes of its own, but can at pleaſure aſſume the tone of every other animal in the foreſt, from the humming bird to the eagle, and deſcending even to the wolf or the raven. One of them, confined in a cage, has been heard to mimic the mewing of a cat, the chattering of a magpie, and the creaking of the hinges of a ſign-poſt in high winds. It is ſaid to take a pleaſure in archly deceiving other birds, alluring the ſmaller kinds, for example, with the call of their mates, and then terrifying them with the ſcream of an eagle. In the warmer parts of America, it ſings inceſſantly from March to Auguſt, both day and night, beginning with its own compoſitions, and frequently finiſhing by borrowing from the whole feathered quire, repeating its tunes with ſuch artful ſweetneſs as to excite both pleaſure and ſurpriſe. The female frequently builds her neſt in the buſhes or fruit trees about houſes, but is ſo very ſhy, that if a perſon only looks at the neſt, ſhe immediately forſakes it. It feeds on graſhoppers, different kinds of berries, &c. and is itſelf eaten by the Americans, who account it very delicate food.

742 *Orpheus.* *Mocking thruſh.*—Back brown; breaſt and lateral tail feathers whitiſh; eyebrows white. Eight inches and a half long; inhabits South America, and reſembles the laſt in its fine ſong and imitative notes.

743 *Pagodarum.* *Pagoda thruſh.*—Black; back and rump gray; vent white;

Passeres. white; head crested. Size of a finch. Inhabits Malabar and Coromandel, chiefly about the temples and pagodas.

744 *Curæus.* *Chili thrush.*—Glossy black; bill somewhat striated; tail wedged; bill, eyes, legs, and flesh black; tail five inches long. About the size of the missel; is common in Chili, where it sings sweetly; imitates the notes of other birds, and, when tamed, the voice of man. Feeds on worms, seeds, and even on smaller birds, which it kills by perforating the skull with its bill. Congregates with starlings, and makes a nest of twigs and fibres, mixed with mud, and lined with hair. Lays three bluish-white eggs.

745 *Roseus.* *Rose-coloured thrush.*—Pale rosy; head, wings, and tail black; hind head crested. About eight inches long. Inhabits Europe and Asia, and has been found, though very rarely, in England. As it feeds chiefly on

746 *Cantæus.* locusts, it is held sacred by the Turks. *Musician thrush.*—Reddish-brown, varied with transverse dark streaks; whitish beneath; chin, cheeks, and throat reddish-orange; a black blotch spotted with white on each side of the neck. Four inches long. Inhabits the woods of Cayenne. Is solitary; feeds on ants and other insects, and is celebrated for its sweet and variable note.

747 *Tintinnabulatus.* *Chiming thrush.*—Brown above; under parts and rump reddish-tawny; chin white; cap and cheeks white, spotted with black; eyebrows and streak behind the eyes black. Four inches long. Inhabits the woods of Cayenne and Guiana. Its note resembles the chiming of bells.

748 *Tinniens.* *Alarum thrush.*—Brown above; white beneath; breast spotted with black; tail even; bill black above, white beneath; legs pale plumbeous. Six inches and a half long. Inhabits Cayenne. Every morning and evening, for the space of an hour, cries with a harsh loud voice, like an alarum bell.

749 *Rex.* *King thrush.*—Reddish-brown above, paler beneath; hind head lead-coloured; front varied with white and brown. Seven inches and a half long. Inhabits South America, near the hillocks raised by the white ants on which it feeds.

750 *Merula.* *Blackbird.*—Black; bill and eyelids yellow. Female, and the young male rusty black, and bill dark. There is a variety with the head white, another with the body white and black, and a third entirely white. Inhabits Europe and Asia. A well-known species, admired for its song, which is a shrill kind of whistle of various notes, enlivening the early days of spring. The nest is externally composed of green moss, fibrous roots, &c. having the inside plastered with earth, and then lined with fine dry grass. The female lays four or five blue eggs, thickly covered with pale ferruginous brown spots. The blackbird feeds principally on worms and shelled snails, but is also fond of insects and fruit in general. It breaks the shell of the snail with great dexterity on a stone. In confinement it readily eats crumbs of bread, and flesh either raw or prepared for the table. With us it is never observed to migrate or to congregate, but lives solitary in woods and inclosed situations. It is easily tamed, and imitates other sounds, even that of the human voice.

751 *Torquatus.* *Ring ouzel.*—Blackish; bill yellowish; collar white. Rather larger than the blackbird. Inhabits Europe, Asia, and Africa. Is migratory in some countries, but is known to remain and breed in the mountains of Scotland and Wales. When fattened, its flesh is much esteemed. In its habits it is nearly allied to the blackbird. Passeres.

752 *Arundinaceus.* *Reed thrush.*—Rusty brown; white testaceous beneath; quill feathers brown, tipt with reddish. Frequently varies in its markings. Inhabits the reedy marshes of Europe, builds a hanging nest among the reeds, and lays from five to six yellowish-white eggs spotted with brown. The male sings while the female is sitting.

753 *Cantor.* *Songster thrush.*—Greenish-black, shining with blue or violet; wings and tail black. Inhabits the Philippine isles in numerous flocks; sings very sweetly, and often lays in pigeon houses.

754 Gen. 79. AMPELIS, *Chatterer.* AMPELIS.

755 Characters. Bill straight, convex, somewhat incurved; each mandible notched; nostrils covered with bristles; tongue sharp, cartilaginous, and bifid; middle toe connected at the base to the outermost.

756 *Garrulus.* *Waxen*, or *Bohemian chatterer.*—Hind head crested; secondary quill feathers tipt with red horny appendages; bill and legs black; irides bright ruby; cheeks tawny; throat black, with a small bristly tuft in the middle; head and body reddish-ash above; ocular line and chin black; breast and belly pale purplish-bay; lesser wing-coverts brown; greater remotest from the body black, tipt with white; quill feathers black, three first tipt with white; six next with half an inch of the exterior edge yellow; inner white; tail black, tipt with yellow. Length about eight inches; size nearly that of a starling. Inhabits Europe, Northern Asia, and America. Occasionally visits this country, migrating in flocks. In the month of February, it frequents the neighbourhood of Edinburgh, where it feeds on the berries of the mountain ash. It is supposed to breed farther north, and to build in the holes of rocks. Its flesh is excellent.

The other species of this genus are all inhabitants of the warmer parts of America.

757 COLIUS. Gen. 80. COLIUS, *Coly.*

758 Characters. Bill short, thick, convex above, and flat beneath; upper mandible bent down at the tip; nostrils small at the base of the bill, and nearly covered with feathers; tongue jagged at the tip; tail long and wedged.

759 *Capensis.* *Cape coly.*—Outermost tail feathers white on the outside; body cinereous; whitish beneath. Ten inches and a quarter long. Inhabits the Cape of Good Hope.

760 *Panayan coly.*—Above yellowish-ash colour; beneath rufous; breast streaked with black; head crested; bill black; legs pale flesh colour; tail very long, the feathers of which are of different lengths. Native of Panay, one of the Philippine islands.

761 *Viridis.* *Green coly.*—Shining green; hind head and eyelids silky black; wings and tail blackish. Twelve inches long. Inhabits New Holland.

762 *Indicus.* *Indian coly.*—Cinereous above; rufous beneath; hind head and chin yellow; lores and naked orbits yellow. Fourteen inches long. Inhabits India.

Gen.

Passeres.

Gen. 81. LOXIA, *Grosbeak.*

763 LOXIA. 764 Characters. Bill strong, thick, convex, and rounded at the base; lower mandible bent in at the edge; nostrils small, round at the base of the bill; tongue truncated.

765 *Curvirostra.* *Crossbill*, or *sheld apple.*—Mandibles crossing each other; body varying in colour; wings and forked tail brown; varies, with a reddish head and scarlet body. Male red, varied with brown and green. Female olive green, mixed with brown. Weighs about an ounce and a half; length near six inches and a half. Inhabits Europe, Asia, and America. Is not known to breed with us, but is more or less found among fir plantations from June to the latter end of the year, feeding on the seed by dexterously dividing the scales of the cones, for which purpose the bill is admirably adapted. It is sometimes found in orchards in autumn, and will readily divide an apple to get at the kernels. Many are taken with a bird-call and birdlime; and others by a horse-hair noose fixed to a long fishing rod; for so intent are these birds on picking out the seeds of the cone, that they will suffer themselves to be taken by the noose being put over their head. The crossbill breeds in the northern countries early in the month of March, on the tops of the pine trees, making its hemispherical nest of twigs, and of the *sphagnum arboreum*, two inches and a half thick, lining it with the *lichen floridus*, and stopping up the chinks with rosin. It is capable of being tamed, and in confinement climbs up the wires of a cage by the claws and beak.

766 *Coccothraustes.* *Grosbeak*, or *hawfinch.*—Chesnut ash; wings with a white line; middle quill feathers rhombic at the tips; tail feathers black at the base of the thinner web; orbits and chin black; tail spotted with white within. The length of this species is six inches; weight about two ounces. The plumage is subject to great variety. It inhabits Europe, and usually appears in Britain in the autumn, continuing till April, and appearing in small flocks of four or five, but not commonly. It is more plentiful in France, and breeds in Burgundy in April. The nest is composed of dried fibres intermixed with liver wort, and lined with finer materials. The eggs are of a bluish green spotted with olive brown, with a few irregular black markings. This bird lives on the kernel of the almond, walnut, and cherry, breaking with the greatest ease their hard stones with its bill.

767 *Enucleator.* *Pine grosbeak.*—Wings with a double white line; tail feathers all black; head, neck, breast, and rump in the young bird, red; in the old yellow; female olive. Nine inches long. Inhabits Europe, Asia, and America, but is limited to the northern regions of these quarters of the globe, and especially to the pine forests. In this island it is only found in the north of Scotland, where it is also supposed to breed. It sings excellently, and during the night, but soon ceases. It builds in trees pretty near the ground a nest of small sticks, and lines it with feathers, laying four eggs. Its food is the seed of the pine.

768 *Pyrrhula.* *Bullfinch.*—Cinereous; head, wings, and tail black; coverts of the tail, and hindermost quill feathers white; crown black; breast cinereous; belly of the male red, of the female chesnut. Scarcely six inches long, and liable to vary in its markings. Inhabits Europe and Siberia. In summer it frequents woods, and in winter haunts orchards and gardens, where it preys on the young buds of the trees. It is not gregarious, but is usually observed in pairs, or in broods, and remains with us all the year, making a nest of small dry twigs, lined with fibrous roots in some thick bush, either in woods or hedges about the latter end of April or beginning of May, and laying four or five eggs of a bluish-white, speckled and streaked with purple, and rather larger than those of a linnet. The native notes of the bullfinch are few, but remarkably soft, and uttered in so low a tone as to escape a common observer; the call notes are simple, but more audible. In confinement it becomes very docile, and may be taught a great variety of tunes, and even to imitate human speech. But it also acquires harsh strains with equal facility. A friend of the Comte de Buffon saw one of this species that had never heard any person whistle but carters; and it whistled with their strength and coarseness. These birds are also susceptible of strong and durable attachments. Some have been known, after escaping and living a whole year in the woods, to recognise the voice of their mistress, and return to forsake her no more, and others have died of melancholy on being removed from the first object of their attachment.

769 *Cardinalis.* *Cardinal grosbeak.*—Crested; red; frontlet black; bill and legs blood red; crest, when erect, pointed. Nearly eight inches long. Inhabits North America. From the melody of its song, some of the Americans call it *nightingale*. In spring, and during great part of summer, it sits on the tops of the highest trees, and makes the forests echo with its song. During summer, it lays up its winter provision of maize and buck-wheat. Nearly a bushel of the former grain has been found in the retreat of one of these birds, artfully covered with leaves and small branches of trees, and only a small hole left at which the bird enters In cages it will sing with a very short interval of silence, through the whole year.

770 *Moluccensis.* *Molucca grosbeak.*—Colour brownish; the head, throat, and tail feathers are black; beneath waved white and black; bill black; hindhead, wings and legs brown; rump waved white and black. Four inches long. Inhabits the Molucca islands. Plate CCCCI. Fig. 2.

771 *Hamburgia.* *Hamburgh grosbeak.*—Head and neck chesnut above; chin, band in the middle of the white throat and rounded tail brown; back, breast, and rump yellowish-brown, spotted with black; belly, vent, and two bands on the wing-coverts white. Nearly six inches long. Inhabits the neighbourhood of Hamburg. Feeds on insects, and climbs trees like the creeper.

772 *Chloris.* *Greenfinch*, or *green grosbeak*; provincially *green linnet.*—Yellowish-green; primary quill feathers edged with yellow; four lateral tail feathers pale yellow at the base; bill brownish; legs flesh coloured; female browner. Rather larger than the house sparrow; weight nearly eight drams; length six inches and a half. Inhabits Europe and Kamtschatka; is very common in most parts of this country in summer; becomes gregarious in winter, and associates with chaffinches and yellow hammers; but in severe weather migrates from particular districts. It is rather a late breeder. The nest is composed of small dry twigs, bents, and moss, interwoven with wool, and lined with hair and feathers. It is commonly placed among ivy surrounding a tree, or in some

Paſſeres. ſome thick buſh. The eggs are four or five; white, ſpeckled with ruſty red at the larger end, and much like thoſe of the linnet, but larger. The principal food of this bird is ſeed and grain. It is eaſily tamed if held on one's fingers in the dark, and heated gently. Though its native ſong is trifling, in confinement it will catch the notes of other birds.

773 *Sulphurata.* *Brimſtone groſsbeak.*—Olive brown; throat and belly pale yellow; eyebrows yellow. Nearly ſix inches long. Inhabits in flocks near the Cape of Good Hope, frequents the banks of rivers, and builds a pendulous neſt, with a long neck beneath, in trees and ſhrubs.

774 *Bengalenſis.* *Bengal groſsbeak.*—Gray; crown yellow; temples whitiſh; belly whitiſh, ſpotted with brown. "This bird (ſays Sir William Jones) is exceedingly common in Hindoſtan: he is aſtoniſhingly ſenſible, faithful and docile; never voluntarily deſerting the place where his young are hatched, but not averſe, like moſt other birds, to the ſociety of mankind, and eaſily taught to perch on the hand of his maſter. In a ſtate of nature he generally builds his neſt on the higheſt tree that he can find, eſpecially on the palmyra, or on the Indian fig tree, and he prefers that which happens to overhang a well or a rivulet; he makes it of graſs, which he weaves like cloth, and ſhapes like a large bottle, ſuſpending it firmly on the branches; but ſo as to rock with the wind, and placing it with its entrance downward to ſecure it from birds of prey. Its neſt uſually conſiſts of two or three chambers; and it is popularly believed that he lights them with fire flies, which he is ſaid to catch alive at night, and confine with moiſt clay or with cow-dung. That ſuch flies are often found in his neſt, where pieces of cow dung are alſo ſtruck, is indubitable; but as their light could be of little uſe to him, it ſeems probable that he only feeds on them. He may be taught with eaſe to fetch a piece of paper, or any ſmall thing that his maſter points out to him. It is an atteſted fact, that if a ring be dropped into a deep well, and a ſignal given to him, he will fly down with amazing celerity, catch the ring before it touches the water, and bring it up to his maſter with apparent exultation; and it is confidently aſſerted, that if a houſe or any other place be ſhown to him once or twice, he will carry a note thither immediately on a proper ſignal being made. One inſtance of his docility I can myſelf mention with confidence, having often been an eye witneſs of it. The young Hindoo women at Benares, and in other places, wear very thin plates of gold called *ticas*, ſlightly fixed, by way of ornament, between their eyebrows; and when they paſs through the ſtreets, it is not uncommon for the youthful libertines who amuſe themſelves with training theſe birds, to give them a ſignal which they underſtand, and ſend them to pluck the pieces of gold from the foreheads of their miſtreſſes, which they bring in triumph to their lovers."

775 *Canora.* *Brown cheeked groſsbeak.*—Dirty greeniſh; cinereous beneath; cheeks brown, ſurrounded with a yellow fringe. Inhabits Mexico, and ſings delightfully.

776 *Philippina.* *Philippine groſsbeak.*—Brown; yellowiſh-white beneath; crown and breaſt pale yellow; chin brown. Inhabits the Philippine iſlands. A variety found in Abyſſinia, has the tail and quill feathers greeniſh brown, and edged with yellow. Conſtructs a neſt like the *bengalenſis*.

777 *Abyſſinica.* *Abyſſinian groſsbeak.*—Yellowiſh; crown, temples, throat and breaſt black; ſhoulders blackiſh; quill and tail feathers brown, and edged with yellow; irides red; wing-coverts brown, edged with gray; legs reddiſh-gray. Size of the hawfinch. Inhabits Abyſſinia. This bird forms a curious neſt of a pyramidal ſhape, which is ſuſpended from the ends of branches like the neſts of ſome others of this tribe. The opening is on one ſide, facing the eaſt; the cavity is ſeparated in the middle by a partition of half its height; up this the bird aſcends perpendicularly, and then deſcending on the other ſide, forms its neſt in the further chamber. By this means the brood is defended from ſnakes, ſquirrels, monkeys, and other miſchievous animals, beſides being ſecured from the rains, which in that country laſt ſometimes for five or ſix months together. Paſſeres.

778 *Penſilis.* *Penſile groſsbeak.*—Green; head and throat yellow; ocular band green; belly gray; vent rufous red; bill, legs, tail and quill feathers black; the laſt edged with green. Size of a houſe ſparrow. Inhabits Madagaſcar. Conſtructs a hanging neſt of ſtraw and reeds, ſhaped like a bag with an opening beneath, on one ſide of which is the true neſt. The bird does not chooſe a new ſituation every year, but faſtens a new neſt to the end of the laſt, ſo that five may ſometimes be ſeen hanging from one another. Builds in large ſocieties, and produces three at each incubation.

779 *Socia.* *Sociable groſsbeak.*—Rufous brown; yellowiſh beneath; frontlet black; tail ſhort; bill black; region of the ears yellowiſh; legs brown. Inhabits the interior parts of the Cape of Good Hope, where they were firſt diſcovered by Mr Paterſon. They build their neſts in a ſpecies of mimoſa, which grows to an uncommon ſize; and which, from its ample head and ſtrong wide ſpreading branches, is well calculated to admit and ſupport their dwellings. The tallneſs and ſmoothneſs of its trunk are alſo a perfect defence againſt the invaſions of the ſerpent and monkey tribes. In one tree deſcribed by Mr Paterſon, there could not be fewer than from eight hundred to a thouſand neſts under one general roof. Mr Paterſon calls it a *roof*, becauſe it reſembles that of a thatched houſe, and projects over the entrance of the neſt below in a very ſingular manner. "The induſtry of theſe birds (ſays this traveller) ſeems almoſt equal to that of the bee. Throughout the day they ſeem to be buſily employed in carrying a fine ſpecies of graſs, which is the principal material they uſe for the purpoſe of erecting this extraordinary work, as well as for additions and repairs. Though my ſhort ſtay in the country was not ſufficient to ſatisfy me by ocular proof, that they added to their neſt as they annually increaſed in numbers; ſtill, from the many trees which I have ſeen borne down by the weight, and others which I have obſerved with their boughs completely covered over, it would appear that this is really the caſe. When the tree, which is the ſupport of this aerial city, is obliged to give way to the increaſe of weight, it is obvious that they are no longer protected, and are under the neceſſity of building in other trees. One of theſe deſerted neſts I had the curioſity to break down, to inform myſelf of the internal ſtructure of it, and found it equally ingenious with that of the external. There are many entrances, each of which forms a regular ſtreet with neſts on both ſides, at about two inches diſtance from each other. The graſs with which they build is called the *Boſhman's* graſs; and I believe the ſeed of it to be their

Passeres. their principal food; though, on examining their nests, I found the wings and legs of different insects. From every appearance, the nest which I dissected had been inhabited for many years; and some parts of it were much more complete than others. This, therefore, I conceive to amount nearly to a proof, that the animals added to it at different times, as they found necessary from the increase of the family, or rather of the nation or community."

780 *Orix.* *Grenadier grosbeak.*—Gray; bill, front and belly black; neck and rump tawny; sometimes the wings are white, and the tail is brown. Size of a sparrow; inhabits Africa, and is found chiefly in marshy and reedy grounds. The nest is formed among the reeds with small twigs, so closely interwoven with cotton, as not to be penetrated by any weather. It is also divided into two compartments, of which the upper is for the male, and the lower for the female and the young.

Among various other species which we have not room to describe, there are two or three of a very small size, which inhabit Surinam.

781 EMBERIZA. Gen. 82. EMBERIZA, *Bunting.*

782 Characters. Bill conical; mandibles receding from each other from the base downwards, the lower with the sides contracted, the upper with a hard knob within.

783 *Nivalis.* *Snow bunting, snow bird,* or *snow flake.*—Quill feathers white, the primaries black on the outer edge; tail feathers black, the three lateral ones white; bill and legs brown. Besides the varieties induced by age, sex, and climate, there are others which seem to be more permanent. In winter, the whole body, except the back and middle coverts, often becomes nearly white. Somewhat larger than the chaffinch. In summer, inhabits in vast flocks, the north of Europe, Asia, and America. In winter, migrates to some warmer climate. Breeds in some of the mountains of Scotland, where it is sometimes mistaken for the ortolan. It builds in the fissures of rocks, constructing a nest of grass and feathers, lined with the hair and wool of the arctic fox or other quadruped, and lays five eggs. It sings well, sitting on the ground, feeds on grain, and is wakeful during the night. It is taken in great numbers in winter, when it is fat, and its flesh esteemed delicate.

784 *Alustelina.* *Tawny bunting.*—Quill feathers dusky, white at the base, the last wholly black; tail feathers black, the middle ones at the edge, and three lateral ones white on each side, with a dusky spot without. Nearly seven inches long. Inhabits with the last; but is more rare. In some places it is called *sea-lark* and *brambling.*

785 *Montana.* *Mountain bunting, lesser mountain finch* or *brambling.*—Five first quill feathers blackish-brown, the rest white, spotted with brown at the tips; tail feathers brown, three lateral ones all white on each side; bill yellow, tipt with black; head chesnut; chin white; upper part of the neck and back cinereous; breast and belly with longitudinal flame coloured spots. Found in Yorkshire, Lincolnshire, and Northamptonshire, but is not common.

786 *Miliaria.* *Common bunting.*—Brown; spotted with black beneath; orbits rufous; bill and legs brownish; quill feathers dusky; outer edges pale yellow; tail a little forked, edged with white; legs yellowish. Weight nearly two ounces; length seven inches and a half. Inhabits Europe in large flocks during the autumn and winter. Seems partial to champaign countries, abounding with corn, and is rarely found in uncultivated parts, or in grass fields remote from arable land. While the female is employed in incubation, the male sits on the branch of a neighbouring tree, and cheers her with his rude song. The nest is placed on the ground, formed externally of straw, lined with fibrous roots or dry grass, and sometimes finished with long hairs. The eggs are from four to six, of a dirty white, spotted and veined with reddish-brown and ash-colour. These birds are sometimes brought to market, and sold for larks, to which they are little or nothing inferior, but are easily distinguished by the form of the bill, and the tooth-like knob in the roof of the mouth, by the most common observer. Passeres.

787 *Hortulana.* *Ortolan.*—Quill feathers brown, the first three whitish at the edges; tail feathers brown, the two lateral ones black on the outer side; bill, naked eyelids and legs yellowish; head and neck olive-ash; chin yellowish, surrounded with a cinereous line; feathers of the back and scapulars brownish-bay, black in the middle; body reddish beneath. The female is distinguished by the head and neck being cinereous, and each feather with a narrow blackish line. Somewhat less than the yellow hammer; length six inches and a quarter. Inhabits several parts of Europe, but is not found in Britain. Ortolans are common in France, Italy, some parts of Germany, Sweden, &c. migrating in spring and autumn, when they are caught in great quantities, and fattened for the table. For this purpose, they are confined in a dark room, and fed plentifully with oats and millet. They are then killed for sale, and reckoned the most delicate of food. The ortolan will sometimes sing very prettily, its note being not unlike that of the yellow hammer, but finer and sweeter. In some parts, it makes its nest on a low hedge, in others on the ground, and constructs it carelessly, like that of the lark. The female lays four or five grayish eggs, and in general has two broods in the year.—There are five or six varieties.

788 *Citrinella.* *Yellow hammer* or *yellow bunting.*—Tail feathers blackish, the two outer ones on the inner edge, with a pointed white spot; bill black; crown, cheeks and body beneath yellow; eyebrows brownish; nape greenish; feathers of the neck and back blackish down the middle, rufous at the sides, and edged with gray; rump pale tawny; wings chesnut, olive or black, mostly edged with gray; lateral ones olive without; the tip edged with white; legs yellowish-brown. The weight of this species is about seven drams; length six inches. Inhabits Europe, and is one of the most common indigenous birds of this country. Its song is as little attractive as that of the common bunting, possessing only a repetition of the same note, five or six times successively, and terminating in one more lengthened and shrill. It congregates in winter, approaching houses, and picking up scattered grains. It does not breed till late in the spring. The nest is generally placed near the ground, in some low bush or hedge, and is composed of straw and various dried stalks, lined with fine dry grass, and finished with long hair. The eggs differ somewhat in colour and size, some being nearly white, and others having a purplish hue, but all more or less marked with hair-like streaks. The number is usually three, four, or five.

789 *Cia.* *Foolish bunting* or *foolish sparrow.*—Reddish; head with a few blackish lines; eyebrows white. Size of the yellow

Passeres. yellow hammer. Inhabits Europe and Siberia. Is so tame as to be caught in any snare. Has a trifling note, like that of the yellow hammer.

790 *Cirlus.* *Cirl bunting.*—Brown; breast spotted; eyebrows pale yellow; two outmost tail feathers, with a white wedged spot; bill brown-ash; head olive; temples yellow; a black spot between the bill and eyes; throat black, with a yellow band; body yellow beneath; tail slightly forked, the feathers edged with gray. Female streaked with brown beneath; chin and vent white. Length six inches and a half; weight about seven drams. Inhabits France and Italy. "We first discovered this species," says Mr Montague, "near Kingsbridge in the winter of 1800, not uncommon amongst flocks of yellow buntings and chaffinches, and procured several specimens of both sexes, killed in different places six or seven miles from that place. They are indigenous to Devonshire, but seem to be confined to the southern parts of that county contiguous to the coast, having found them extending as far as Teignmouth, at both of which places we found their nests; but have never observed them far inland. It generally builds in furze or some low bush; the nest is composed of dry stalks, roots, and a little moss, and lined with long hair and fibrous roots. The eggs are four or five in number, cinereous white, with irregular long and short curved lines, terminating frequently with a spot at one end; size rather inferior to those of the yellow bunting, to which it bears great resemblance. These birds pair in April, and begin laying early in May.—The female might readily be mistaken for that sex of the yellow bunting at a little distance, but is materially different when compared, especially in the chesnut colour of the upper parts of this bird. The note is also similar to that of the yellow bunting, but shorter, not so shrill, and the latter part not drawn out to such length.—It is remarkable, that so common a bird as the cirl bunting seems to be in the west of England, should have so long escaped the notice of British naturalists; but in all probability this has been occasioned by their locality. It is said to be only found on the continent in the warmer parts of France and Italy; so with us it seems confined to the mildest part of England; but the winter of 1800, which was severe in Devonshire, did not force them to seek a warmer climate, but, on the contrary, they continued gregarious with other small birds, searching their food among the ploughed lands".

791 *Familiaris.* *Familiar bunting.*—Cinereous, spotted with brown; tail feathers tipt with white; hind part of the back yellow. Size of a siskin. Was found at Java by Osbeck, and was so familiar, that if the cage door was opened, it would leap on the first person's hand that was offered; if any one whistled to it, it sang very sweetly in return, and if it saw a dish of water, it went immediately and bathed in it. It was fed with rice.

792 *Oryzivora.* *Rice bunting* or *rice bird.*—Black; crown reddish; belly black; tail feathers daggered. Six inches and three quarters long. Inhabits Cuba. These birds feed on the early crops of rice in the island of Cuba; but when the rice in Carolina begins to ripen, they quit the island, and proceed to Carolina, in amazing and destructive multitudes. They arrive there in September, while the rice is yet milky; and when it grows hard they return. The birds which thus migrate are all females; but both sexes make a transient visit to Carolina in the spring.

Passeres. *Reed bunting* or *reed sparrow.*—Head black; body gray and black; outmost tail feathers with a white wedged spot; bill brown; throat and breast black; belly white, streaked with black at the sides; wing coverts and quill feathers browniish-red, black down the middle; tail feathers pointed, the eight middle ones black, two middle ones rufous on each edge, the rest on the outer only; legs browniish. Weight near five drams and a half; length six inches. Inhabits the marshy and reedy districts of Europe and southern Siberia. A brown variety occur at the Cape of Good Hope, and a white one about Astracan. "It is somewhat extraordinary," observes the intelligent ornithologist quoted above, "that the manners and habits of so common a bird should remain so long in obscurity; even modern authors tell us it is a song bird, that it sings after sunset; and describe its nest to be suspended over the water fastened between three or four reeds. There can be no doubt, however, that the nest, as well as the song of the sedge warbler, have been taken and confounded for those of this bird; for as they both frequent the same places in the breeding season, that elegant little warbler is pouring forth its varied notes concealed in the thickest part of a bush; while this is conspicuously perched above, whose tune is not deserving the name of song, consisting only of two notes, the first repeated three or four times, the last single and more sharp. This inharmonious tune it continues to deliver with small intervals from the same spray, for a great while together when the female is sitting. The nest is most commonly placed on the ground near water; sometimes it builds in a bush some distance from the ground; at other times in high grass, reeds, sedge, or the like, and even in furze at a considerable distance from any water; in all these situations we have met with it, but never fastened or suspended as authors have related. The nest is composed of stalks of grass, or other dry vegetable substances, sometimes partly moss, and lined with fine grass; frequently finished with long hair. The eggs, which are four or five in number, weigh about 36 grains, and are of a dirty bluish-white or purplish-brown, with numerous dark-coloured spots and veins, much resembling those of the chaffinch.

793 *Schæniclus.*

794 *Paradisea.* *Whidaw bunting.*—Black; breast red; four middle tail feathers long and pointed, two very long; bill black. The two middle tail feathers are four inches in length, very broad, and ending in a long thread; the two next are 13 inches or more in length, very broad in the middle, narrower at the end, and rather pointed; from the middle of the shaft of this last arises another long thread; the rest of the tail feathers are only two inches and a quarter long; the two middle long ones are placed somewhat vertically, appear undulated across, and are more glossy than the others; the legs are flesh-coloured. The female is wholly of a deep brown, approaching to black, but does not acquire its full plumage till the third year. This species inhabits Africa, particularly Angola. It moults in November, and also late in spring.

795 *Regia.* *Shaft-tailed bunting.*—Four middle tail feathers black, from nine to ten inches long, equal and feathered only at the tip; bill and legs red; body above, and vent black; body beneath and throat, temples, and orbits, rufous; neck above spotted with black. Native of Africa. Less than the linnet. Plate CCCCII. Fig. 1.

796 *Chlorocephalo.* *Green-headed bunting.*—Brown; head and neck olive; back

Passeres. back and wing coverts varied with brown and black; tail forked. Only two instances are recorded of this species having been found in England.

797 TANAGRA. Gen. 83. TANAGRA, *Tanager*.

798 Characters. Bill conical, pointed, notched, almost triangular at the base, and a little inclining at the tip.

799 *Jacapa.* *Red-breasted tanager.*—Black; front, throat and breast scarlet; bill black; lower mandible silvery, and convex on the hind part; front sometimes black; legs brown. Female purplish-brown; reddish beneath; wings and tail brown. Six inches and a half long. Inhabits South America, frequenting inhabited places, building a pendulous cylindrical nest, and feeding on fruits.

800 *Episcopus.* *Bishop tanager.*—Cinereous; wings and tail blue without. Six inches and a half long. Inhabits Cayenne, especially about the skirts of the forests, and feeds on the lesser kinds of fruits. During night it roosts on the palm leaves.

801 *Jacarina.* *Jacanari tanager.*—Black violet; wings whitish beneath; tail divaricated and forked; bill and legs cinereous. Inhabits Brazil and Guiana. Is fond of newly cultivated land; haunts small trees, particularly coffee trees. The male frequently hops upwards from a branch, alighting again, first on one foot, and then on the other, accompanying each leap by a note, and spreading out the tail at the same time. The nest is hemispherical, about two inches in diameter, and composed of dried herbs of a gray colour. The eggs are two in number, of a greenish-white, marked with small numerous red spots, deepest and most in number at the large end.

802 *Siberica.* Plate CCCCII. Fig. 5. *Siberian tanager.*—Black; tips of the interscapular and rump feathers fringed with white; bill short, pale, tipt with brown; tail notched at the tip; legs black. Native of Siberia; size of a thrush.

The other species, which are numerous, and not very distinctly ascertained by authors, seem to differ from one another more in their markings than their habits.

803 FRINGILLA. Gen. 84. FRINGILLA, *Finch*.

804 Characters. Bill conical, straight, and pointed.

This is a numerous and active tribe of birds, very generally dispersed over the world, and feeding principally on insects and grain.

805 *Lapponica.* *Lapland finch.*—Head black; body gray and black; eyebrows white; outmost tail feathers with a white wedged spot. Six inches and a half long. Inhabits Europe, Asia, and America. Runs along the ground like a lark, and sings on the wing.

806 *Cælebs.* *Chaffinch;* provincially, *beech finch*, *horse finch*, *pink*, and *twink*.—Limbs black; quill feathers white on both sides, the three first without spots; two of the tail feathers obliquely white; bill white, but in spring and summer bluish, tipt with black; crown, nape, and sides of the neck hoary; temples and throat reddish; belly and vent reddish-white; wing coverts with a white blotch, the greater with a white band besides; quill feathers yellowish at the edge, and white at the base; tail a little forked; legs brown. The female wants the red on the breast and other parts. Rather less than the sparrow. Inhabits Europe and Africa. Continues with us the whole year; but the females migrate from Sweden to Holland in the autumn, leaving their mates behind, and return in the spring. This bird makes a most elegant nest of green moss, curiously studded with lichen, interwoven with wool, and lined with feathers and hair. It builds against the side of a tree, particularly in ivy, or in some forked branch of a bush; but particularly in apple trees overgrown with moss and lichen, and, like many other birds, adapts the materials of its nest to the surrounding colour. The eggs are four or five, larger than those of the goldfinch, of a dirty white, tinged with purple, marked with streaks and spots of dark purple. Its notes are few, and scarcely deserve the name of song. Both sexes have a monotonous call-note, which seems to express the word *twink*. This species is subject to several varieties. Passeres.

807 *Montifringilla.* *Mountain finch*, *brambling*, or *bramble.*—Base of the wings fine yellow beneath; bill yellowish, tipt with black; head, neck, and back black; in the female brown; the feathers edged with reddish-brown; rump, lower part of the breast and belly white; throat and upper part of the breast reddish-tawny; in the female reddish-gray; lesser wing coverts reddish; middle ones reddish-white; greater black, tipt with white; those next the body reddish at the tip; quill feathers black, edged with yellowish; tail a little forked; legs gray. Rather larger than the preceding; length about six inches. Inhabits Europe and Asia, breeding in the northern regions. Is frequently seen in large flocks in the winter, on the coasts of Kent and Sussex, when the weather is severe, when it is sometimes so exhausted as to suffer itself to be taken up. They are also found in the interior parts of the kingdom at that season, flying in company with chaffinches and yellow hammers. In hard winters, they are also frequently seen in the neighbourhood of Edinburgh. They are partial to the pine forests in the Highlands, and live on beech mast and the seeds of other trees. They build in trees a nest formed of hypnums without, and of wool and feathers within, the female laying four or five yellowish spotted eggs. Their flesh is eatable, though sometimes bitter.

808 *Carduelis.* *Goldfinch* or *thistlefinch.*—Quill feathers black; and except the outmost marked with fine yellow in the middle; two outmost tail feathers in the middle, and the rest at the tips white; bill white, tipt with black; frontlet scarlet, in the female brown; cheeks, hind head, and belly white; top of the head black; wing coverts black, in the female brown; back, rump, and breast chesnut-brown. This beautiful species, which is subject to great variety, is rather less than the chaffinch, and inhabits Europe, Asia, and Africa. It is gregarious in winter, lives to a great age, subsists chiefly on the seeds of the thistle, hemp, and capitated plants; is docile and easily tamed, and sings delightfully, even in confinement. It sometimes builds in hedges, but most commonly in trees, especially those that are evergreen. The nest is neatly constructed of bents, moss, and lichen, woven together with wool, and sometimes lined with wool, or hair covered with thistle down, or the pappus of the willow. The eggs are four or five, of a bluish white, with a few small spots, chiefly at the larger end. The goldfinch readily breeds with the canary and other congenerous birds.

809 *Lepida.* *Lepid finch.*—Greenish-brown; band above and beneath the eyes and chin orange; breast black. Only half the size of the canary bird. Inhabits the woods of Cuba, and sings with a weak, but very sweet note.

810 *Æthiops.* *Ethiopian finch.*—Deep black; irides rufous. Inhabits

Passeres. habits the woods of America, feeds on fruits and seeds, is easily tamed, and sings with the feathers of the head erected.

811 *Caspa.* *Caspa finch.*—Reddish-gray; front and chin white; wings and tail black. Inhabits Barbary and Abyssinia, frequents granaries in large flocks, and excels the canary bird in its song.

812 *Elegans.* *Beautiful finch.*—Green above; neck cinereous; breast yellow; frontlet, chin, rump, and tail red; belly with curved white spots; bill and legs red; rump and tail chesnut red. Five inches long. Inhabits Africa.

813 *Canaria.* *Canary bird*, or *canary finch.*—Bill and body straw colour; quill and tail feathers greenish. Is now well known over Europe, into which it was brought from the Canary islands, about the beginning of the 16th century. It is somewhat longer than the siskin, and about five inches and a half in length. With us they are kept in a state of captivity, and partake of all the differences and varieties incident to that condition. Buffon enumerates 29 varieties, and more might probably be added to his list. "The breeding and rearing of these charming birds", says Mr Bewick, "form an amusement of the most pleasing kind, and afford a variety of scenes highly interesting and gratifying to innocent minds. In the places fitted up and accommodated to the use of the little captives, we are delighted to see the workings of nature exemplified in the choice of their mates, building their nests, hatching and rearing their young, and in the impassionate ardour exhibited by the male, whether he is engaged in assisting his faithful mate in collecting materials for her nest, in arranging them for her accommodation, in providing food for her offspring, or in chaunting his lively and amorous songs during every part of the important business. The canary will breed freely with the siskin and goldfinch, particularly the former; it likewise proves prolific with the linnet, but not so readily, and admits also the chaffinch, yellow bunting, and even the sparrow, though with still more difficulty. In all these instances, excepting the first, the pairing succeeds best when the female canary is introduced to the male of the opposite species. According to Buffon, the siskin is the only bird of which the male and female propagate equally with those of the male or female canaries." Great numbers of these birds are reared in the Tyrol. Four Tyrolese usually brought over to England about 1600 of them annually; and though they carried them on their backs 1000 miles, and paid 20l. for such a number, they were enabled to sell them at five shillings a-piece. It is not generally known, that the song of the canary bird is usually composed of the notes of the tit-lark or of the nightingale. Mr Barrington saw two of the species which were imported from the Canary islands, neither of which had any song; and he was afterwards informed, that a ship brought over a great many of them with the same defect. Most of those from the Tyrol have been educated under parents whose progenitors were instructed by a nightingale. Our English canary birds, however, have more of the tit-lark's than of the nightingale's notes. The canary bird lives chiefly on the seeds of *phalaris canariensis*, *canabis*, *myagrum*, *brassica napus*, *avena*, &c.

814 *Spinus.* *Siskin* or *aberdevine.*—Quill feathers yellow in the middle; the first four without spots; tail feathers yellow at the base, and tipt with black; crown black; body yellowish; greenish above, breast greenish; wings green; throat brown, of the female white; head and back, in the female, greenish-ash, spotted with brown. Four inches and three-fourths long. Inhabits Europe, and is liable to several varieties. Though migratory in most places, it does not seem to observe any regular periods, as it is sometimes seen in large, and at other times in very small numbers. Buffon remarks, that the great flights happen only once in the course of three or four years. It conceals its nest with so much art, that it is extremely difficult to discover it. Kramer informs us, that in the forests bordering on the Danube, thousands of young siskins are frequently found, which have not dropt their first feathers, and yet it is rare to meet with a nest. It is not known to breed in this island; nor is it known whence they come over to us. In some parts it is called the *barley bird*, from its appearing when that grain is sown. Its song, though not so loud as that of the canary, is pleasing and various. It is docile and familiar in captivity, and will imitate the notes of other birds, even to the chirping of a sparrow. Like the goldfinch, it may easily be taught to draw up its little bucket with water and food. It drinks frequently, and seems fond of throwing water over its feathers. The male breeds freely with the hen canary, and is assiduous in his attention to her, carrying materials for the nest, and arranging them, and, during the time of incubation, regularly supplying her with food. Passeres.

815 *Barbata.* *Bearded finch.*—Pale yellow; wings green, spotted with black and red; chin bearded. Size of the canary bird. Inhabits the mountains of Chili, except in winter, when it descends into the plains. It is easily tamed, sings charmingly, and imitates the notes of other birds.

816 *Canabina.* *Greater redpole* or *red-headed linnet.*—Chesnut brown; reddish-white beneath; wings with a longitudinal white band; tail feathers edged with white on each side; bill black; head and neck cinereous; sides yellow; middle of the belly white; tail forked, dusky, both sides edged with white. Head of the female ash-colour, spotted with black; crown and breast without the red; breast dirty yellow with black lines. Subject to considerable variety in the markings. Five inches and a half long. Inhabits Europe and America. These birds fly in flocks during winter, at which time the males have little or none of the red markings, which in the return of spring they put forth. In many parts they haunt the sea shore, and, in the breeding season, often resort to furzy commons. The nest is composed of moss and bents interwoven with wool, and lined with wool and hair. The eggs are four or five, of a bluish-white, with purplish specks and short lines. The redpole sings nearly the whole year, is very familiar, and so easily tamed, as to be cheerful in five minutes after it is taken.

817 *Linota.* *Common* or *brown linnet.*—Chesnut brown; whitish beneath; wings with a longitudinal white band; tail feathers edged with white on each side. Though this is usually described as a distinct species, it seems to be only a variety of the preceding.

818 *Linaria.* *Lesser redpole* or *lesser red-headed linnet.*—Brown, varied with gray; reddish-white beneath; wings with a double white band; crown and breast red; bill and legs brown; back black, the feathers edged with chesnut; sides with narrow dusky lines; quill feathers dusky, edged with dirty white; legs dusky. Female with a saffron spot on the front. Weight about two drams and a half; length

Passeres. length five inches. Inhabits Europe, Asia, and America. It is gregarious in winter, when many are taken by the bird-catchers near London, &c. under the name of *stone redpole*. It breeds in Scotland and the north of England; building in the trunk of the alder a nest of dry sticks and wool, lined with hair and feathers, or willow down. Lays four eggs of a light bluish-green, thickly sprinkled with reddish spots, especially at the larger end.

819 *Montium.* *Mountain linnet* or *twite*.—Black, varied with reddish; whitish beneath; feathers of the lower part of the neck black in the middle; wings with a white band; rump red; feathers of the throat and breast black, edged with white; middle quill feathers edged; secondary tipt with white. Rather larger than the greater redpole; length about six inches and a half. Inhabits Europe. Is gregarious, and has much the habits of the other linnets, with which it associates.

820 *Coccinea.* *Scarlet finch*.—Bright orange; wings and even tail black; quill feathers orange at the outer edge; the primaries tipt with black; bill brownish; legs black. Four inches and a half long. Inhabits the Sandwich islands.

821 *Domestica.* *House sparrow*.—Quill and tail feathers brown; body gray and black; wings with a single white band; bill black; crown gray; a black spot under each eye; a broad bay mark surrounding the hind part of the head; cheeks white; chin and under side of the neck black, the latter edged with white; lesser wing coverts bright bay; the last row black, tipt with white. The lower mandible of the female white, and a white line beyond each eye. The most remarkable varieties are, 1. white, 2. yellow, clouded with chesnut above, and 3. blackish. Weighs nearly seven drams; length about six inches. Inhabits Europe, Asia, and Africa. This well-known species inhabits the dwellings of the rich and the poor, and is rarely seen far from the habitation of man. It lives on seeds and fruits, and often cunningly avoids the snares that are laid for it. In autumn it is often gregarious, but more frequently so in winter. It does not sing, except when tamed, and then the male will imitate the song of a linnet, or other bird within hearing. It makes a nest conformable to the place which it chooses for incubation, whether in a hole of a wall, in thatch, under the tiles of a house, or in the nest of a martin, or other bird; but when it builds in a tree, the nest is of a large size, and covered at the top, composed of hay and straw, lined warmly with feathers and fragments of thread or worsted, bits of cloth, or any refuse material of that sort found about houses. The female lays six eggs of a whitish colour, spotted with dusky and cinereous, and usually breeds thrice in the year. Mr Smellie relates a pleasing anecdote of the affection of these birds towards their young. "When I was a boy," says he, "I carried off a nest of young sparrows, about a mile from my place of residence. After the nest was completely removed, and while I was marching home with them in triumph, I perceived, with some degree of astonishment, both parents following me at some distance, and observing my motions in perfect silence. A thought then struck me, that they might follow me home, and feed their young according to their usual manner. When just entering the door, I held up the nest, and made the young utter the cry which is expressive of the desire of food. I immediately put the nest and the young in the corner of a wire cage, and placed it on the outside of a window. I chose a situation in the room where I could perceive all that should happen, without being myself seen. The young animals soon cried for food. In a short time both parents, having their bills filled with small caterpillars, came to the cage; and after chatting a little, as we would do with a friend through the lattice of a prison, gave a small worm to each. This parental intercourse continued regularly for some time, till the young were completely fledged, and had acquired a considerable degree of strength. I then took one of the strongest of them, and placed him on the outside of the cage, in order to observe the conduct of the parents after one of their offspring was emancipated. In a few minutes both parents arrived, loaded as usual with food. They no sooner perceived that one of their children had escaped from prison, than they fluttered about, and made a thousand noisy demonstrations of joy both with their wings and their voices. These tumultuous expressions of unexpected happiness at last gave place to a more calm and soothing conversation. By their voices and their movements it was evident that they earnestly entreated him to follow them, and to fly from his present dangerous state. He seemed to be impatient to obey their mandates; but, by his gestures, and the feeble sounds he uttered, he plainly expressed that he was afraid to try an exertion he had never before attempted. They, however, incessantly repeated their solicitations; by flying alternately from the cage to a neighbouring chimney top, they endeavoured to show him how easily the journey was to be accomplished. He at last committed himself to the air, and alighted in safety. Upon his arrival, another scene of clamorous and active joy was exhibited. Next day I repeated the same experiment, by exposing another of the young on the top of the cage. I observed the same conduct with the remainder of the brood, which consisted of four. I need hardly add, that not one either of the parents or children ever afterwards revisited the execrated cage".—Few birds are more persecuted by the farmers, and, perhaps, more unjustly so, than sparrows; as it has been proved, that they are more useful than noxious. Mr Bradley, in his Treatise on Husbandry and Gardening, shows, that a pair of sparrows, during the time that they have their young to feed, destroy, on an average, every week 3360 caterpillars. He discovered that the two parents carried to the nest 40 caterpillars in an hour. He supposed the sparrows to enter the nest only during 12 hours each day, which would cause a daily consumption of 480 caterpillars. This sum gives 3360 caterpillars extirpated weekly from a garden. But the utility of these birds is not limited to this circumstance alone; for they likewise feed their young with butterflies and other winged insects, each of which, if not destroyed in this manner, would be the parent of hundreds of caterpillars.

822 *Montana.* *Tree* or *mountain sparrow*, *Hamburgh grosbeak* of Latham, &c.—Quill and tail feathers brown; body gray and black; wings with a double white band; bill, chin, and spot on the ears black; head and nape bay; body above reddish-brown, spotted with black; whitish beneath; wing coverts black, edged with rufous; tail feathers blackish, edged with rufous; legs yellowish. Female without the black spots. Five inches and a half long, and rather smaller than the preceding. Inhabits Europe and North America, and is said to be very plentiful

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tiful in Lincolnſhire, Yorkſhire, and Lancaſhire. It is local, and very gregarious.

823 *Ultramarina.* *Ultramarine finch.*—Blue; bill white; legs red. Size of a canary bird. Inhabits Abyſſinia, and ſings well.

824 PHYTOTOMA.

Gen. 85. PHYTOTOMA.

825 Characters. Bill conical, ſtraight, ſerrated; noſtrils oval; tongue ſhort, and obtuſe; feet four-toed.

826 *Rara.* *Rara phytotoma*, or *four-toed plant cutter.*—Bill thick, half an inch long, and toothed on each ſide like a ſaw; irides brown; body aſh above; paler beneath; quill and tail feathers ſpotted with black; tail rounded; hind toe ſhorter than the fore ones. Inhabits Chili, where it is not uncommon. Has a rough voice, and utters at intervals, the ſyllable *ra, ra*, very diſtinctly. Feeds on vegetables, digging and cutting about their roots, with its bill as with a ſaw, and thus making great havock in gardens. Builds in lofty trees, in retired ſituations.

827 MUSCICAPA.

Gen. 86. MUSCICAPA, *Fly-catcher.*

828 Characters. Bill nearly triangular, notched on each ſide, bent in at the tip, and beſet with briſtles at the root; toes in moſt caſes divided to their origin.

The birds of this genus live on inſects, particularly flies. Of 92 ſpecies, two only inhabit Britain.

829 *Paradiſi.* *Paradiſe fly-catcher*, or *pied bird of Paradiſe.*—Creſted; head black; body white; tail wedged; two middle feathers very long; head, neck, and chin greeniſh-black; back, rump, throat, and body white beneath; wing coverts and quill feathers black, edged with white; two middle tail feathers 15 inches long; legs lead-coloured. Eight inches and a quarter long. Of this ſpecies there are ſeveral varieties. Inhabits Aſia and Africa.

830 *Tyrannus.* *Fork-tailed fly-catcher.*—Tail very long and forked; body black; white beneath. Fourteen inches long. Inhabits Canada and Surinam.

831 *Malachura.* *Soft-tailed fly-catcher.*—Brown; ferruginous beneath; throat of the male blue; tail long, wedged, with looſe webbed feathers. Inhabits New Holland, being found about Sidney and Botany Bay, in marſhy places, abounding with long graſs and ruſhes, which afford it a hiding place, and where, like the bearded titmouſe, it is ſuppoſed to make its neſt. When diſturbed, its flight is very ſhort; but it runs on the ground with great ſwiftneſs. This ſingular bird, which is but three inches long, is well repreſented in the fourth volume of the Linnæan Tranſactions.

832 *Pygmæa.* Plate CCCCI. Fig. 4. *Dwarf fly-catcher.*—Straw-coloured beneath; head and neck rufous, ſpotted with black; feathers of the back and wing coverts cinereous, edged with greeniſh; quill feathers black, edged with gray; tail black and ſhort. Hardly three inches long. Inhabits Cayenne.

833 *Rubricollis.* *Purple-throated fly-catcher.*—Black; chin and throat with a large purple red ſpot. Twelve inches long. Inhabits woods in South America, is gregarious, feeds on fruits and inſects, and often aſſociates with the toucan.

834 *Atricapilla.* *Pied fly-catcher.*—Black above; under parts, ſpot on the front and ſhield on the wings, white; lateral tail feathers white without; bill and legs black; tail coverts ſpotted with white. Female brown; white beneath, and wants the frontal ſpot. About the ſize of a linnet, and nearly five inches long. There are three or four varieties, and the young birds at firſt reſemble the female. It is local, and by no means plentiful in this iſland, affecting wild and uncultivated tracts of furze. According to Dr Latham, it builds in ſome hole of a tree, not very near the ground, making a neſt of a few fibres, mixed with moſs, and laying ſix eggs.

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835 *Viridis.* *Chattering fly-catcher.*—Green; yellow beneath; belly and vent whitiſh; eyebrows and ſpot under the eyes whitiſh; tail brown. Seven inches and three quarters long. Haunts unfrequented places in Carolina; is very ſhy, and flies with its legs extended.

836 *Cærulea.* *Azure fly-catcher.*—Blue; hind head and breaſt with a black ſpot; belly and vent bluiſh-white; quill and tail feathers duſky-blue. Five inches long. Inhabits the Philippine iſlands.

837 *Flabellifera.* *Fan-tailed fly-catcher.*—Olive above, ferruginous beneath; eyebrows, chin, throat, ſides of the neck, and lateral tail feathers white; middle tail feathers, head, and collar black. Six inches and a half long. Inhabits New Zealand. Flies with its tail expanded like a fan; and is eaſily tamed.

838 *Nigra.* *Black fly-catcher.*—Totally black; bill, head, and legs duſky black. Inhabits Society iſlands.

839 *Agilis.* *Active fly-catcher.*—Olive-brown; whitiſh beneath; quill and tail feathers black, and edged with olive-brown. Four inches and a half long. Inhabits Cayenne. Is continually hunting after inſects, which it picks out from under the bark of trees.

840 *Griſola.* *Spotted fly-catcher.*—Browniſh, whitiſh beneath; neck longitudinally ſpotted; vent pale-rufous; bill black, whitiſh at the baſe; inſide of the mouth yellow; head large, browniſh, and ſpotted with black; back mouſe-coloured; wings and tail black; the former edged with white; chin ſpotted with red; legs black. About the ſize of the tit-lark; length five inches and a half. Inhabits Europe. This bird viſits us in ſpring, and departs in September. It frequents orchards and groves, and will make its neſt on the limb of ſome fruit-tree nailed againſt the wall, or in a hole, ſometimes in out-buildings, on the end of a beam or rafter, and at other times againſt the body of a large tree, on the ſtump of a decayed branch. The neſt is formed of bents, moſs, and ſuch materials, interwoven with ſpiders webs, and lined with feathers. The female lays four or five eggs, not much unlike thoſe of the redbreaſt, but rather leſs, and the ruſt-coloured ſpots more diſtinct, and not ſo much confined to the larger end. Its food ſeems to be entirely winged inſects, though it is ſaid to be particularly fond of cherries, probably from the circumſtance of its frequenting the cherry tree for the ſake of flies that are attracted by the fruit. As ſoon as the young birds leave the neſt, they are led by the old ones to ſome neighbouring wood or grove where inſects abound, and where they may be ſeen darting in every direction in purſuit of flies, and frequently returning to the ſame ſtation. The note of this ſpecies is a ſimple weak chirp, not frequently uſed till after the young are fled, ſo that the bird, though not uncommon, is not readily diſcovered.

841 *Deſerti.* *Deſert fly-catcher.*—Body ferruginous and ſooty; wings and tail blackiſh; bill yellowiſh. Inhabits the deſerts of Arabia.

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Gen. 87. MOTACILLA.

842 MOTACILLA. Bill ſubulated, ſtraight; the mandibles nearly equal; noſtrils obovate; tongue lacerated at the end.

843 Characters. Moſt of this genus feed on inſects; a few are gregarious; and on the approach of winter, migrate to warmer climates.

844 *Luſcinia.* *Nightingale.*—Rufous-aſh, white-aſh beneath; tail feathers rufous-brown; bracelets cinereous; bill brown; head and back pale mouſe-colour, with olive ſpots; tail red-mouſe colour; legs and quill feathers brown-aſh, the latter cheſnut on the outer edge. About the ſize of the ſky-lark, but of a more ſlender and elegant form. Weighs ſix drams; and meaſures between ſix and ſeven inches in length. There is a variety with the body ſomewhat larger, and another that is entirely white. Inhabits Europe, Aſia, and Africa. Appears in England ſometimes in April, but moſt commonly not till the beginning of May. The females do not arrive till a week or ten days after the males; ſo that on the firſt arrival of theſe birds none but males are caught, a circumſtance which has given riſe to the ſuppoſition, that the proportion of males exceeds that of females. The nightingale is ſaid to be found as far north as Yorkſhire, and certainly not farther weſt than the eaſtern borders of Devonſhire; it is plentiful both in Somerſetſhire and Dorſetſhire. This bird reſides wholly in woods and thickets, and is ſeldom ſeen. About the latter end of May it prepares a neſt of dry leaves, generally of the oak, and lined with dry graſs, uſually placed on the ground, among the ſame materials of which it is compoſed, ſo that it is not readily diſcovered. The eggs are four or five, of an uniform brown colour, and rather larger than thoſe of the hedge-ſparrow. As ſoon as the young are hatched, the ſong of the nightingale ceaſes; and it is a miſtaken notion that this, or any of the later breeding birds, have a ſecond brood in the ſame ſeaſon, except when ſome accident has befallen the firſt. The young are not eaſily reared in confinement. At firſt they are fed with meal-worms, and afterwards with boiled ſheep's heart. The winter reſidence of this bird is ſaid to be in Aſia. The ſweetneſs and variety of its notes have been univerſally admired, and the more ſo perhaps, becauſe they are uttered in the ſilence of night. In a wild ſtate, it does not ſing above ten weeks in the year, while thoſe confined in a cage continue their ſong for nine or ten months. The honourable Daines Barrington once kept a very fine nightingale for three years, during which time he paid particular attention to its ſong. Its tone was infinitely more mellow than that of any other bird, though at the ſame time, by a proper exertion, it could be very brilliant. When it *ſang its ſong round*, in its whole compaſs, he obſerved ſixteen different beginnings and cloſes; at the ſame time that the intermediate notes were commonly varied in their ſucceſſion with ſo much judgement as to produce the moſt pleaſing variety. Sometimes it would continue its ſong twenty ſeconds without a pauſe; whenever reſpiration, however, became neceſſary, it was taken as ſkilfully as by an opera ſinger. Nightingales will alſo adopt the notes of other birds, may be inſtructed to ſing by turns, with a chorus, and even to articulate words. The London bird-catchers take them by net-traps, baited with meal-worms from the bakers ſhops. It is with great difficulty that the old birds are induced to ſing after being taken; for a conſiderable time they refuſe to eat; but by great attention to their treatment, and avoiding every thing that might agitate them, they at length reſume their ſong, and continue it during the greater part of the year. Paſſeres.

845 *Calidris.* *Hang-neſt warbler.*—Greeniſh-brown above, tawny beneath, ocular line, and one beneath black. Size of a robin-red-breaſt. Inhabits Jamaica, and builds a hanging neſt.

846 *Modularis.* *Hedge-ſparrow*, or *hedge-warbler.*—Gray-brown above; wing-coverts tipt with white; breaſt bluiſh-aſh; bill blackiſh; cheeks ſtriped with white; feathers of the back and wing-coverts edged with cheſnut; wings and tail duſky; rump greeniſh-brown; chin and breaſt cinereous; belly whitiſh; vent yellowiſh; legs fleſh-coloured. Length five inches and three quarters; weight nearly ſix drams. Inhabits Europe; and is one of the few of the warbler tribe that remains with us the whole year. It has a pleaſing plaintive ſong, which it begins with the new year, if the weather is mild, breeds early, making, in March, a neſt compoſed of green-moſs and wool, and lined with hair, which is placed in ſome low ever-green ſhrub, thick buſh, or cut hedge, and ſometimes in faggot piles. The female lays four or five blue eggs. In default of inſects and worms, the hedge-ſparrow will pick up crumbs of bread, and ſeems to prefer ſituations near the habitation of man. The cuckoo frequently makes choice of this bird's neſt for the purpoſe of depoſiting its egg.

847 *Hippolais.* *Leſſer petty-chaps.*—Greeniſh-aſh above, yellowiſh beneath; belly whitiſh; limbs brown; eyebrows whitiſh; upper mandible black, lower bluiſh; inſide of the mouth red; a yellowiſh line above and beneath the eyes; quill and tail feathers mouſe-coloured, and edged with greeniſh; the ſhafts black; lower wing-coverts yellow; belly ſilvery. Weight about two drams; length rather more than four inches and a half; ſize inferior to that of the yellow wren, which it much reſembles in plumage, and with which, and the wood-wren, it has been often confounded. It is the firſt of the warblers that viſits us in the ſpring, being generally heard on or before the firſt of April, repeating its ſong, if ſo it may be called; for it conſiſts only of two notes, which ſeem to expreſs the words *chip*, *chop*, four or five times ſucceſſively. It is a buſy, reſtleſs bird, always active among the trees and buſhes, in ſearch of inſects. The neſt is oval, with a ſmall hole near the top, compoſed externally of dry leaves and coarſe dry graſs, and lined with feathers. For the moſt part, it is placed on, or near the ground, frequently on a ditch-bank, or in a tuft of graſs or low buſh. The eggs are five or ſix, white, ſpeckled with purpliſh-red at the larger end only, with here and there a ſingle ſpeck on the ſides. This ſpecies is found in almoſt every part of the country where wood or hedges can ſhelter it. Its note is heard long after the yellow wren is ſilent; and it remains with us, not unfrequently, till the latter end of October.

848 *Sylvatica.* *Wood-wren.*—Olive-green above; throat and cheeks yellow; belly and vent fine ſilvery; tail feathers brown, and, except the firſt, green on the outer webs, and white on the inner; bill horn-colour; irides hazel; breaſt pale-yellow; a yellow line through the eye; tail ſomewhat forked, and brown; under part of the ſhoulder bright yellow; legs horn-colour. Weight about two drams

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drams and forty grains; length five inches and a quarter. The female is rather larger. This is a migrative species, appearing about the end of April, and departing in September. The females arrive ten days or a fortnight after the males. From its great similitude to the yellow wren, it has been little noticed as a distinct species, but is far from uncommon in some parts of England. It seems partial to oak and beech woods, where it may be found by its singular note, expressive of the word *twee*, drawn out to some length, and repeated five or six times in succession, terminating with the same notes, delivered in a hurried manner, and accompanied by a shaking of the wings. The nest, which is oval, with a small hole near the top, is constructed of dry grass, a few dead leaves, and a little moss, and is invariably lined with finer grass and a few long hairs. It is placed on the ground, and contains six white eggs, sprinkled all over with purplish spots.

849 *Hortensis.* *Petty-chaps*, or *greater petty-chaps*.—Gray-brown above, white beneath; eyebrows whitish; quill feathers brown-ash, edged with gray, the outmost on the outer web, and near the tip on the inner, whitish; bill blackish; lateral tail feathers edged with gray-brown; legs brown. Length six inches; weight about five drams. Inhabits Europe; and occurs during summer in Lancashire, and in some of the southern counties of England. It chiefly frequents thick hedges, where it makes a nest composed of goose-grass, and other fibrous plants, slimsily put together, with sometimes an addition of a little green moss externally. It usually contains four eggs, about the size of the hedge-sparrow's, of a dirty white, blotched all over with light brown, especially at the larger end, where spots of ash-colour also appear. The song of this species is little inferior to that of the nightingale. Some of the notes are sweetly and softly drawn, others quick, lively, loud, and piercing, reaching the distant ear with pleasing harmony, not unlike the blackbird's whistle, but in a more hurried cadence. It frequently sings after sunset.

850 *Salicaria.* *Sedge warbler*.—Cinereous above, white beneath; eyebrows white; bill black; head brown, with dusky streaks; hind part of the neck and back reddish-brown; back spotted with black; tail coverts tawny; wing-coverts dusky, edged with pale brown; tail brown and wedged; legs dusky. Weight about three drams; length five inches and a half. Inhabits sedgy situations in Europe. It comes to us about the middle of April, and leaves us again in September. It has a variety of notes, which it utters in a hurried manner, and which partake of those of the sky-lark and swallow, as well as of the chatter of the house-sparrow. It is frequent by the sides of rivers and watery places, where sedges and reeds grow, among which it makes a nest, composed of a little moss, intermixed with dried stalks, and lined with dried grass, and occasionally a few hairs, sometimes fastened between two or three reeds, sometimes placed on a tuft of rushes, and fastened round the bottom of them, and at other times, in a low bush, or on the trunk of a willow. The eggs are five or six, of a light-brown colour, mottled with darker shades of the same. Various authors have erroneously ascribed the song of this warbler to the reed-bunting, which has no notes that deserve the name of song, a mistake which has originated from both species breeding in the same places, and the reed-bunting being conspicuous on the upper branches of a tree, while the little warbler, concealed in the thickest part, is heard aloud. It has been remarked, that if it be silent, a stone thrown into the bush, will make it begin singing instantly, and that it will also sing during a moon-light night.

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851 *Sylvia.* *White-throat*.—Cinereous above, white beneath; first tail feathers longitudinally half-white, the second tipt with white; bill black, white at the base; head brownish-ash; back reddish. Female, with the breast and belly snowy. There is a variety that is reddish-ash above, and reddish-white beneath, with the throat white; the outmost tail feathers on the upper part of the inner side, and whole of the outer side white. Weight about four drams; length five inches and three quarters. Inhabits Europe, and is very common in our inclosed countries. It arrives about the middle of April, and enlivens our hedges with its song, when it erects the feathers on the crown of the head. The nest is made of goose-grass, lined with fibres, and sometimes a few long hairs, but is of so flimsy a texture that it can afford little warmth to the eggs of young. It is generally placed in some low bush, among nettles or other luxuriant plants. The eggs are four or five, of a greenish-white, and speckled all over with light brown or ash-colour. The white-throat feeds on insects and berries, and frequents our gardens in the summer, for the sake of cherries and currants.

852 *Sylviella.* *Lesser white-throat*.—Brown-ash, dirty-white beneath; two middle tail feathers shorter and subulated; bill dusky, the base beneath yellowish; irides dusky; crown deeper than the body; legs brown. Scarcely five inches long. Though not so common as the preceding, it occurs in many of the hedges of Gloucestershire and Wiltshire; builds in low shrubs, and has a shrill whistling note.

853 *Ficedula.* *Epicurean warbler*.—Browniſh, white beneath; breast spotted with cinereous. About five inches long. Inhabits Europe. Its flesh is reckoned delicious.

854 *Provincialis.* *Dartford warbler*.—Chesnut above, ferruginous beneath; middle of the belly, edge of the quill feathers, spurious wings, and outside of the outmost tail feathers white; eyebrows red; bill black, the base beneath white; irides scarlet; tail black, and as long as the body; legs yellow. Inhabits Provence, and rarely England. A pair were shot on a common near Dartford in 1773, and others have since been observed about Falmouth, Wandsworth, &c. As yet the nest and eggs are unknown. It is rather larger than the common wren, and five inches and a half in length. It is a shy bird, concealing itself among the thickest furze, on the least alarm, and creeping from bush to bush. The shortness of the wing and length of tail give it a singular manner of flying, which is in short jerks, with the tail thrown up. Its note is a weak but shrill piping noise, several times repeated.

855 *Pensilis.* *Pensile warbler*.—Gray, yellow beneath; belly and eyebrows white; lores spotted with yellow; wing-coverts with alternate white and black bands. Nearly five inches long. Inhabits St Domingo, and some of the West India islands, where it feeds chiefly on insects and fruits; and has a very delicate song, which is continued throughout the year. "The sagacity displayed by this bird (says Mr Bingley), in building and placing its nest is truly remarkable. She does not fix it at the forking of the branches, as is usual with most other

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birds, but ſuſpends it to binders hanging from the netting, which ſhe forms from tree to tree, eſpecially thoſe which fall from branches that hang over the rivers and deep ravines. The neſt conſiſts of dry blades of graſs, the ribs of leaves, and exceedingly ſmall roots, interwoven with the greateſt art; it is faſtened on, or rather it is worked into, the pendent ſtrings. It is in fact a ſmall bed rolled into a ball, ſo thick and compacted as to exclude the rain; and it rocks in the wind without receiving any harm. But the elements are not the only enemies againſt which this bird has to ſtruggle; with wonderful ſagacity it provides for the protection of its neſt from other accidents. The opening is not made on the top nor ſide of the neſt, but at the bottom. Nor is the entrance direct. After the bird has made its way into the veſtibule, it muſt paſs over a kind of partition, and through another aperture before it deſcends into the abode of its family. This lodgment is round and ſoft, being lined with a ſpecies of lichen, which grows on the trees, or with the ſilky down of plants."

856 *Alba.* *White*, or *water-wag-tail;* provincially, *diſhwaſher*, or *waſherwoman.*—Breaſt black; two lateral tail feathers obliquely half white; bill, hind head, nape, throat, and legs black; front, orbits, ſides of the neck, and belly white; body cinereous above; greater quill feathers blackiſh; ſecondary, and wing-coverts duſky, and edged with gray; middle tail feathers black, and edged with gray. Female with the crown brown. Weight nearly ſix drams; length ſeven inches and a half. This ſpecies inhabits almoſt every where; is a very active bird, and continually in motion, running after flies. In this country, as the weather becomes ſevere, it is apt to haunt marſhes that are ſubject to the flow of the tide. Early in ſpring they return to their uſual ſummer ſituation; and from the number which are ſometimes ſeen together at this time attending ſheepfolds and newly ploughed fields, we may preſume that they are gregarious in their flights. In the breeding ſeaſon they ſeem to prefer pleaſure grounds that are conſtantly mowed, on which they run unincumbered, and where the inſects have not ſufficient cover to evade their ſight. The neſt is found in various places, ſometimes on the ground, in a heap of ſtones, the hole of a wall, or on the top of a pollard tree. It is compoſed of moſs, dried graſs, and fibres, put together with wool, and lined with feathers or hair. The eggs are four or five, white, and ſpotted all over with light brown and aſh-colour; weighing about forty grains, and much reſembling that of the cuckoo, which bird frequently makes choice of the wagtail's neſt, in which to depoſit her egg. It ſings very prettily early in ſpring, and frequently gives the alarm on the appearance of a hawk, which it purſues in company with the ſwallows. The young birds have no black on the throat till the returning ſpring, and the old ones looſe it in winter. In this ſtate they have been erroneouſly deſcribed as a variety.

857 *Flava.* *Yellow wagtail.*—Breaſt and belly yellow; two lateral tail feathers obliquely half white; bill and legs black; hind claw very long; body olive above; band through, and one beneath the eyes, black; throat with a few black ſpots; middle and greater wing-coverts black, edged with yellowiſh; tail black. Female with whitiſh eyebrows. Length ſix inches and a half. Inhabits Europe and Aſia. Viſits this country in April, and departs in September. It frequents arable land, eſpecially in the more champaign parts, and ſometimes uncultivated ground, interſperſed with furze. It is alſo partial to bean fields; and breeds in all ſuch ſituations, being more negligent of water than the white or gray wagtail. The neſt is always placed on the ground, compoſed of dried ſtalks and fibres, and lined with hair. The eggs are four or five; not very unlike thoſe of the ſedge warbler. Its note is more ſhrill than that of the white, and leſs ſo than that of the gray wagtail. Paſſeres.

853 *Oenanthe.* *Wheatear.*—Back hoary; front, line above the eyes, rump, and baſe of the tail white; a black band through the eyes; crown, neck, and back reddiſh-gray; eyebrows, rump, upper tail coverts, and upper half of the tail white; lower half, legs, and quill feathers black, the latter edged with reddiſh-brown; body yellowiſh-white beneath. The female wants the line over the eyes. There are, however, ſeveral varieties. Weighs about ſix drams and a half; length near ſix inches and a half. Inhabits Europe, Aſia, and Africa. This bird viſits England annually in the middle of March, and leaves it again in September. In ſome parts they are found in great plenty, and are much eſteemed. About Eaſtbourne in Suſſex, they are taken in ſnares made of horſe-hair, placed beneath a long turf. Being naturally very timid, the motion even of a cloud, or the appearance of a hawk, will immediately drive them into the traps. Theſe laſt are firſt ſet, every year on St James's day, the 25th of July; ſoon after which they are caught in aſtoniſhing numbers, conſidering that they are not gregarious, and that more than two or three are ſcarcely ever ſeen flying together. The number annually enſnared in the diſtrict of Eaſtbourne alone, is ſaid to amount to nearly two thouſand dozen. The birds caught are chiefly young ones; and they are invariably found in the greateſt number when an eaſterly wind prevails. They are very fat in autumn, and eſteemed a great delicacy, little inferior to the ortolan. They live chiefly on inſects and earth-worms, frequent open ſtony places, warrens, downs, &c. and breed in ſtone walls, old rabbit holes, or under ſtones, making a large neſt of dry graſs, rabbit's down, feathers, and horſe-hair. The female lays five or ſix eggs, of a uniform pale-blue colour. The wheatear ſings prettily, and not unfrequently on wing, hovering over the female.

859 *Rubetra.* *Whinchat.*—Blackiſh; eyebrows white; wings with two white ſpots; chin and breaſt yellowiſh; bill and legs black; chin white; tail white; the lower third part blackiſh; two middle feathers all blackiſh. Weighs about four drams and a half; length full five inches. Inhabits Europe, and appears in this iſland about the middle of April, frequenting the ſame places with the ſtonechat, and correſponding with it in moſt of its habits.

860 *Rubicola.* *Stonechat* or *moor titling.*—Gray, pale rufous beneath; throat with a white band; lores black; bill and legs blackiſh; head and neck nearly black; body above blackiſh, varied with pale rufous; breaſt and belly reddiſh-yellow; vent and rump white; tail feathers black, the two outmoſt, on the outer edge and tip, pale ferruginous; quill feathers black, edged with ferruginous; thoſe next the body at the baſe, and wing-coverts, with a white ſpot. Female varied with blackiſh and reddiſh. Weight about five drams; length five inches and a quarter. Inhabits hedges and dry moors in Europe and Siberia. Feeds on inſects and worms, and frequently

Paſſeres. ly ſits on the uppermoſt ſprays, darting at every fly that paſſes. The neſt is placed on, or very near the ground, at the bottom of a furze buſh, or ſome ſimilar ſituation, is compoſed of moſs and bents, lined with hair, and ſometimes mixed with ſmall feathers. The eggs are five, of a blue colour, with ſmall rufous ſpots at the larger end. When the young leave the neſt, the old birds are extremely bold and clamorous, and are as artful in enticing any one from their young as they are in concealing their neſt. In the early part of the ſpring, the ſtonechat ſings very prettily, ſpringing into the air, and ſuſpending itſelf for ſome time on wing. But as it breeds ſo early, its ſong is of ſhort duration.

861 *Atricapilla.* *Blackcap.*—Brick-colour above, cinereous beneath; cap duſky-black; bill brown; crown black, in the female cheſnut; body greeniſh-aſh above, gray beneath, gradually growing white; temples gray; quill and tail feathers brown-aſh, edged with greeniſh-aſh, the middle ones very ſhort; legs lead-colour. Of this ſpecies there are at leaſt three or four varieties. Length full ſix inches. Inhabits Europe. It is a migrative bird, viſiting us early in the ſpring and retiring in September. It frequents woods and thick hedges, and ſeems very partial to orchards and gardens, where it delights us with its charming melodious ſong, which is very little inferior to that of the nightingale, except in variety of notes. It makes a neſt in ſome low buſh or ſhrub, compoſed of dried ſtalks, generally of gooſe-graſs, put together with a little wool, and ſometimes a little green moſs on the outſide, and lined with fibrous roots, on which are frequently placed a few long hairs. The eggs are four or five, of a pale reddiſh-brown, mottled with a deeper colour, and ſometimes ſprinkled with a few aſh-coloured ſpots. On the firſt arrival of this bird it feeds greedily on ivy berries, but forſakes that food as ſoon as the vernal ſun has rouſed the inſect tribe.

862 *Spinicauda.* *Thorn-tailed warbler.*—Cheſnut, white beneath; crown ſpotted with yellow; face and eyebrows yellow; wing-coverts rufous, varied with brown; the greater and quill feathers brown; tail wedged, the feathers daggered. Four inches and a half long. Inhabits Terra del Fuego.

863 *Minima.* *Leaſt warbler.*—Pale brown, whitiſh beneath; bill and very ſhort tail yellowiſh. Three inches long. Inhabits New Holland.

864 *Phœnicarus.* *Red-ſtart.*—Throat black; belly and tail rufous; head and back hoary; front white; bill, cheeks, and legs, black; belly white; rump, breaſt, and lateral tail feathers rufous; the middle ones brown; wings brown. Female with the crown and back gray-aſh; and chin white. Five inches and a quarter long. Inhabits Europe. It is ſeen in this country only in ſpring and ſummer. It builds in holes of walls, or even of houſes, or in hollow trees; and lays four or five eggs. It ſings prettily, and imitates the notes of other birds. It is leſs than the redbreaſt, and moves its tail horizontally.

865 *Suecica.* *Blue-throated warbler.*—Breaſt ferruginous, with a blue band; tail feathers brown, ferruginous towards the tip. Size of the redbreaſt. Inhabits Europe and Siberia. Sings ſweetly, and does not migrate.

866 *Cyanea.* *Superb warbler.*—Black-blue above, white beneath; feathers of the head long, lax, and turgid; front, cheeks, and lunule on the neck fine blue. Five inches and a half long. Inhabits New Holland.

867 *Arundinacea.* *Reed wren.*—Olive-brown above, whitiſh beneath; lores and orbits whitiſh-brown; band in the middle of the wings tawny-yellow beneath; tail brown, ſlightly wedged; under part of the toes greeniſh-yellow. Upper mandible horn-colour, lower fleſh-colour; mouth orange; irides brown; chin white; legs pale-olive. Length ſcarcely five inches and a half; weight nearly three drams. Has often been confounded with the ſedge warbler, to which it is nearly allied in form, ſize, and habits; but it may at once be diſtinguiſhed by the greater broadneſs of the baſe of the bill, by the want of a light ſtroke over the eye, and having the upper parts of one plain colour. The neſt and eggs are alſo different. The former is compoſed of long graſs, and the ſeed-branches of reeds, and lined with the finer parts of the latter. It is very deep, and is generally faſtened by long graſs to ſeveral reeds, which are drawn together for that purpoſe. The eggs are four or five, rather larger than thoſe of the ſedge-warbler, of a greeniſh-white, blotched all over with duſky brown. This ſpecies inhabits near Uxbridge, in the fens of Lincolnſhire, and in many parts of the ſouth of England and Wales; arriving about the end of April, or beginning of May, and departing again in September.

868 *Rubecula.* *Redbreaſt*, or *robin redbreaſt.*—Gray; throat and breaſt ferruginous; bill and legs duſky; tail feathers terminating in an acute angle; belly white; edges of the quill feathers inclining to yellow. There is a variety with a white chin; wing-coverts varied with white, black, and rufous; quill and tail feathers black, and edged with rufous: and another that is entirely white. This well-known ſpecies is a conſtant inhabitant of moſt parts of the European continent, and appears about our dwellings in winter, when the woods and fields are deſtitute of inſects. "When the cold grows more ſevere (ſays Buffon), and thick ſnow covers the ground, it approaches our houſes, and taps on the window with its bill, as if to entreat an aſylum, which is cheerfully granted; and it repays the favour by the moſt amiable familiarity, gathering the crumbs from the table, diſtinguiſhing affectionately the people of the houſe, and aſſuming a warble, not indeed ſo rich as that of the ſpring, but more delicate. This it retains through all the rigours of the ſeaſon; to hail each day the kindneſs of its hoſt, and the ſweetneſs of its retreat. There it remains tranquil till the returning ſpring awakens new deſires, and invites to other pleaſures: it now becomes uneaſy, and impatient to recover its liberty." The redbreaſt generally builds its neſt by the roots of trees, in ſome concealed ſpot near the ground, compoſing it of dried leaves mixed with hair and moſs, and lined with feathers. The female lays from five to ſeven eggs, which are whitiſh, and ſpotted with ruſt-colour, and cinereous. In order the more ſucceſsfully to conceal its neſt, we are told, that it covers it with leaves, ſuffering only a narrow winding entrance under the heap to be left. This bird feeds principally on inſects and worms: and its delicacy in preparing the latter is ſomewhat remarkable. It takes a worm by one extremity, in its beak, and beats it on the ground, till the inner part comes away; then taking it in the ſame manner by the other end, it cleanſes the outer part, which alone it eats. Beſides inſects, it is fond of the ſeeds of the ſpindle tree. It is a ſolitary and quarrelſome ſpecies, inſomuch that two are never ſeen on the ſame tree.

869 *Troglodytes.* *Wren.*—Gray; eyebrows white; wings waved with black

Passeres. black and cinereous; bill dark brown; head and body deep reddish-brown above; quill feathers alternately barred with black and red; throat yellowish-white; belly and sides crossed with narrow, dusky, and pale reddish-brown lines; tail with dusky bars; legs brownish. Length nearly four inches and a quarter; weight about two drams and three quarters. Inhabits Europe and Asia. Its nest is curiously constructed, and not begun at the bottom, as is the case in most instances, but first traced, as it were, in oval frame-work, and equally fastened in all its parts to a tree, or other support, and afterwards inclosed on the sides and top, a small hole only being left near the latter, for entrance. If the nest is placed under a bank, the top is first begun, and well secured in some small cavity by which the fabric is suspended. The materials are generally adapted to the place; if built against the side of a hay-rick, for example, the nest is composed of hay, if against the side of a tree covered with lichen, it is made of that species of moss, &c. The lining is invariably feathers. The eggs are seven or eight, and sometimes more, white, and sparingly marked with small reddish spots. The song of the wren is much admired, being, though short, a very pleasing warble, and louder than could be expected from the size of the bird. This it continues throughout the year; and it has been heard to sing, with apparent unconcern, even during a fall of snow. It also sings very late in the evening, though not like the nightingale, after dark. The wren feeds on insects, which it finds in sufficient abundance to support life, even in the severest winters.

870 *Regulus.* *Golden-crested wren.*—Greenish; secondary quill feathers yellow on the outer edge, and white in the middle; crown orange; bill black; crest orange (of the female yellow), each side edged with black; body yellowish-green above, reddish-white beneath; wing-coverts dark-brown, with two transverse white bars; legs yellow. Inhabits every quarter of the globe. This is the smallest British bird; its weight seldom exceeding eighty grains, and its length three inches and three quarters. It migrates from the Shetland islands in winter, but continues in the Orkneys the whole year. Its song is like that of the common wren, but its voice is weaker. It builds a nest nearly of a round form, with a hole in the side; and lays from six to eight eggs. It erects or depresses the crest at pleasure. Though not uncommon, it often escapes observation, from the smallness of its size. It has also been remarked, that the female, from some cause which has not yet been discovered, is frequently destroyed during the time of incubation; and the nest, with the eggs, left to decay. Mr Montagu communicates the following interesting details relative to a young family of this beautiful species. "When first I discovered the nest I thought it a favourable opportunity to become acquainted with some of the manners of this minute species, and to endeavour to discover whether the male ever sung by way of instructing the young ones. Accordingly I took the nest when the young were about six days old, placed it in a small basket, and by degrees enticed the old ones to my study window; and after they became familiar with that situation, the basket was placed within the window; then at the opposite side of the room. It is remarkable, that although the female seemed regardless of danger from her affection to her young, yet the male never once ventured within the room; and yet would constantly feed them while they remained at the outside of the window; on the contrary, the female would feed them at the table at which I sat, and even when I held the nest in my hand, provided I remained motionless. But on moving my head one day, while she was on the edge of the nest, which I held in my hand, she made a precipitate retreat, mistook the open part of the window, knocked herself against the glass, and laid breathless on the floor for some time. However, recovering a little, she made her escape, and in about an hour after I was agreeably surprised by her return, and would afterwards frequently feed the young while I held the nest in my hand. The male bird constantly attended the female in her flight to and fro, but never ventured beyond the window-frame; nor did he latterly ever appear with food in his bill. He never uttered any note but when the female was out of sight, and then only a small chirp. At first there were ten young in the nest, but probably for want of the male's assistance in providing food two died. The visits of the female were generally repeated in the space of a minute and a half or two minutes, or upon an average, thirty-six times in an hour; and this continued full sixteen hours in a day, which, if equally divided between the eight young ones, each would receive 72 feeds in the day; the whole amounting to 576. From examination of the food, which by accident now and then dropt into the nest, I judged from these weighed that each feed was a quarter of a grain upon a medium; so that each young one was supplied with 18 grains weight in a day; and as the young birds weighed about 77 grains at the time they began to perch, they consumed nearly their weight of food in four days at that time. I could always perceive by the animation of the young brood when the old one was coming; probably some low note indicated her near approach, and in an instant every mouth was open to receive the insect morsel. But there appeared no regularity in the supply given by the parent bird; sometimes the same was fed two or three times successively; and I generally observed that the strongest got most, being able to reach farthest, the old one delivering it to the mouth nearest to her, and after each feed she waited a while to see if any *muted*."

871 *Trochilus.* *Yellow wren.*—Dusky green above, yellowish-white beneath; wings and tail brown, and edged with green; eyebrows yellow. Four inches and a half long. Inhabits Europe and America. Frequents wooded and inclosed situations, especially where willows abound. Visits us early in April, and soon begins its usual song, which is short, with little variety. Makes an oval nest, with a small opening near the top, composed of moss and dried grass, and lined with feathers, either in the hollow of a ditch, or in a low bush, close to the ground. The eggs are six or seven, white, and spotted with light rust colour. Has often been confounded with the lesser pettychaps, and the wood wren.

872 *Sutoria.* *Tailor warbler*, or *tailor bird*.—Entirely yellow, and very small, scarcely exceeding three inches in length. Inhabits India. Its nest is composed of two leaves, the one generally dead, which it fixes, at the end of some branch, to the side of a living one, by sewing both together with little filaments (its bill serving as a needle), in the manner of a pouch or purse, and open at the top. Sometimes, instead of a dead and a living leaf, two living

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873 *Boarula.* *Gray wagtail.*—Cinereous above, yellow beneath; first tail feathers entirely; second, on the inner side, white; bill and legs brown; chin and throat black; wing-coverts brown, and edged with ash; quill feathers brown, the secondaries white at the base; middle tail feathers black, and edged with greenish. Weighs about five drams; and measures seven inches and three quarters in length. This elegant species inhabits Europe; visits us about the latter end of September, and departs in April. It is much in motion, constantly flirts the tail, seldom perches, frequents waters, makes its nest on the ground, and sometimes on the banks of rivulets, and lays from six to eight eggs, of a dirty white, marked with yellow spots.

874 PIPRA.

Gen. 83. PIPRA, *Manakin.*

875 Characters. Bill shorter than the head, hard, nearly triangular at the base, and slightly incurved at the tip; nostrils naked; feet gressorial; tail short.

876 *Rupicola.* Plate CCCCII. Fig. 4. *Crested* or *rock manakin.*—Crest erect, edged with purple; body saffron; tail coverts truncated.—Size of a small pigeon; from 10 to 12 inches long; is shy, but may be tamed, if taken young; feeds on small wild fruits, and builds in the clefts of the most remote rocks, laying two white eggs. Inhabits the rocky parts of South America.

877 *Manacus.* *Black-capped manakin.*—Black above, white beneath; spot on the neck above, and on the wings, white; bill black; legs yellow. Inhabits the woods of Guiana. Is restless and gregarious.

878 *Minuta.* *Little manakin.*—Gray; head black, speckled with white. Size of a small wren. Inhabits India.

879 *Musica.* *Tuneful manakin.*—Black above, orange beneath; front and rump yellow; crown and nape blue; chin and throat black. Four inches long. Inhabits St Domingo. Is very shy, and easily eludes the vigilance of such as attempt to take it. Its note is musical, and forms a complete octave, one note succeeding another.

880 PARUS.

Gen. 89. PARUS, *Titmouse.*

881 Characters. Bill very entire, narrow, somewhat compressed, strong, hard, pointed, and covered at the base with bristles; tongue truncated, and bristly at the end; toes divided to the origin, the hind one large and strong.

This is a numerous and prolific tribe, some of the species laying from 18 to 20 eggs at a time. Most of them feed on seeds, fruits, and insects, and some on flesh. They are particularly fond of the brains of other birds, which they get at by cleaving the skulls of such as they find dead. They are restless, bold, cruel to birds less than themselves, and will attack such as are three times their own size. Their note is generally unpleasant.

882 *Cristatus.* Plate CCCCI. Fig. c. *Crested titmouse.*—Head crested; collar black; belly white. Nearly five inches long. Inhabits Europe, chiefly in fir woods. Is solitary, and not easily tamed. Passeres.

883 *Major.* *Great titmouse*, or *ox-eye.*—Head black; temples white; nape yellow; bill, chin, and tail black; back and wings olive; rump blue gray; belly greenish-yellow, divided in the middle by a band of black, extending to the vent; quill feathers dusky, edged partly with blue, partly with white; exterior sides of the outmost tail feathers white, of the others bluish; inner sides dusky; legs lead-coloured. This species weighs about 10 drams; length five inches and three quarters. It inhabits Europe, Asia, and Africa; and is common in many parts of Britain, frequenting gardens and orchards, where it does much mischief by picking off the tender buds of trees. The nest is made of moss, lined with hair, and placed in the hole of a wall, or of a tree. The female sometimes lays eight or ten eggs, but more commonly six, which are white, spotted with rust-colour, and so exactly like those of the nuthatch, as not to be distinguished from them. The common note of the great titmouse is a sort of chatter; but in the spring it assumes a greater variety, a shrill whistle, and a very singular noise, something like the whetting of a saw: but these cease with incubation. A variety was once killed near Feversham in Kent, that had the bill crossed, as in *loxia curvirostra*. Its characters were olive brown above, dirty yellowish beneath; head black; temples cinereous, and bill forked.

884 *Americanus.* *Creeping titmouse.*—Bluish; temples, breast, and back yellowish; flanks purplish. Four inches and three quarters long. Inhabits Carolina and Canada. Is constantly running up and down trees in search of insects.

885 *Cæruleus.* *Blue titmouse*, or *tomtit.*—Quill feathers bluish, the primaries white on the outer edge; front white; crown blue; bill blackish; line from the bill to the eyes, and one surrounding the temples black; back yellowish-green; wing-coverts blue; quill feathers black, with dusky edges; tail blue, the middle feathers longer; body whitish-yellow beneath; legs and claws black. Length about four inches and a half; weight three drams. Inhabits Europe. This species would probably be more admired for its beauty, if it was less common. In winter it frequents houses for the sake of plunder, and will devour flesh greedily, whether fresh or putrid. It is also a constant attendant where horse-flesh is kept for hounds, and in the farm-yard, being partial to oats, which it plucks out, and retiring to a neighbouring bush fixes the grain between its claws, and hammers it with the bill, to break the husk. In summer, it feeds chiefly on insects, in search of which it plucks off a number of young buds from the trees. The nest is always made in some hole, either of a tree or wall, composed of moss, and lined with feathers and hair. The eggs are white, and speckled with rust-colour at the larger end. The female is so tenacious of her nest, that she will often suffer herself to be taken rather than quit it, and will frequently return again after being taken out. It menaces every intruder in a singular manner, hissing like a snake, erecting all its feathers, and uttering a noise like the spitting of a cat, biting, at the same time, severely, if handled. It has no song, but utters a shrill note quickly repeated.

886 *Ater.* *Colemouse*, or *cole titmouse.*—Head black; back cinereous; hind head and breast white; bill and chin black;

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a broad black ſtripe beneath the eyes, from the bill to the neck; belly and vent reddiſh white; wing coverts gray, tipt with white; quill and tail feathers browniſh-aſh, edged with gray; legs and claws lead-coloured. Weight about two drams and a quarter; length four inches and a quarter. Has frequently been confounded with the *paluſtris*; but it is not ſo plentiful a ſpecies; keeps more to woods; ſeems to live entirely on inſects, and has alſo a different note.

887 *Paluſtris.* *Marſh tit-mouſe.*—Head black; back cinereous; temples white. The markings are, however, very ſubject to vary; the length is about four inches and a half; and the weight two drams and a half. Inhabits Europe. With the blue ſpecies it partakes of fleſh, and haunts the oat-ricks. It ſeems to be partial to low wet ground, where old willow trees abound, in the holes of which it frequently neſtles.

888 *Caudatus.* *Long-tailed tit-mouſe.*—Crown white; tail longer than the body; weighs only two drams, and meaſures five inches and a quarter in length. This very elegant and ſingular ſpecies is confined chiefly to the woods and thickets of Europe and Siberia, where it makes a curious oval neſt of lichens, firmly woven together with wool; and having only a ſmall hole on the ſide, placed in the fork of ſome buſh or branch of a tree. The female lays from nine to ſeventeen eggs, which are white, and ſparingly marked with ſmall ruſt coloured ſpots towards the larger end.

889 *Capenſis.* *Cape tit-mouſe.*—Gray aſh; quill feathers black, edged with white; tail black above; bill and legs black. Inhabits the Cape of Good Hope. Conſtructs a luxurious neſt of the down of a ſpecies of aſclepias; near the upper end projects a ſmall tube, about an inch in length, with an orifice about three-fourths of an inch in diameter. Immediately under the tube is a ſmall hole in the ſide, that has no communication with the interior of the neſt. In this hole the male ſits at night; and thus both male and female are ſcreened from the weather.

890 *Biarmicus.* *Bearded tit-mouſe*—Rufous; crown hoary; tail longer than the body; head bearded; vent black; bill pale orange; irides yellow; legs black; tail wedged; whiſkers compoſed of long black feathers; three outer tail feathers black at the baſe, and whitiſh at the tips; middle of the breaſt fleſh coloured; ſides and thighs pale orange; ſix inches and a quarter long. Inhabits marſhy ſituations in Europe. Though it breeds with us, and continues the whole year, its hiſtory is little known; and authors differ not only with reſpect to the ſhape and compoſition of the neſt, but even with reſpect to the place of nidification.

891 *Penduli-nus.* *Penduline tit-mouſe* or *remiz.*—Head ferruginous; ocular band black; quill and tail feathers brown, and edged on each ſide with ferruginous; four inches and a half long. Inhabits Europe and Siberia, frequenting watery places for the ſake of aquatic inſects, on which it feeds. The moſt curious fact in the hiſtory of theſe birds is the exquiſite art diſplayed in the conſtruction of their neſt. They employ the light down found on the buds of the willow, the poplar, and the aſper, on thiſtles, dandelion, &c. With their bill they entwine this filamentous ſubſtance, and form a thick cloſe web, almoſt like cloth. This they fortify externally with fibres and ſmall roots, which penetrate into the texture, and, in ſome meaſure, compoſe the baſis of the neſt. They line the inſide with the ſame down, but not woven, that their young may lie ſoft; they ſhut it above to confine the warmth, and they ſuſpend it with hemp, nettles, &c. from the cleft of a ſmall pliant branch over ſome ſtream, that it may rock more gently, aſſiſted by the ſpring of the branch. In this ſituation, the brood are well ſupplied with inſects, which conſtitute their chief food, and are at the ſame time protected from their enemies. The neſt ſometimes reſembles a bag, and ſometimes a ſhort purſe. The aperture is made in the ſide, and is almoſt always turned towards the water. It is nearly round, and only an inch and a half in diameter, or even leſs, and is often, though not always, ſurrounded by a brim. Theſe neſts are found in the fens of Bologna, Tuſcany, Lithuania, Poland, and Germany. The peaſants regard them with ſuperſtitious veneration, one of them being uſually ſuſpended near the door of each cottage, as a charm againſt lightning.

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892 *Narbonenſis.* *Languedoc tit-mouſe.*—Rufous gray; crown hoary; wings and tail blackiſh, edged with rufous; primary quill feathers edged with white; four inches long. Inhabits France. Builds a ſtrong pendulous neſt on the forked branch of a tree.

893 *Amatorius.* *Amorous tit-mouſe.*—Blackiſh blue; longitudinal ſpot on the middle of the wings, half yellow and rufous; five inches and a half long. Inhabits Northern Aſia, and is remarkable for the mutual affection of the ſexes.

Gen. 90. HIRUNDO, *Swallow.*

894 HIRUNDO.

895 Characters.

Bill ſmall, weak, curved, ſubulated, depreſſed at the baſe; gape larger than the head; tongue ſhort, broad, cleft; wings long; tail moſtly forked.

The birds of this genus are readily diſtinguiſhed, not only by their ſtructure, but by their twittering voice, and their manner of life. They fly with great rapidity, ſeldom walk, and perform all their functions either on the wing or ſitting. By means of their wide mouth they eaſily catch inſects (their principal food) in the air, or on the ſurface of the water. Naturaliſts have been much divided in their opinions reſpecting the migration of the ſwallow tribe. The Hon. Daines Barrington and others have ſuppoſed that they do not leave this country, but that they lie concealed and torpid, during winter, under water, in crevices of rocks, holes in ſand banks, &c. In confirmation of this opinion they quote inſtances which appear to be ſufficiently well authenticated. But a migration of the greater part of the birds is not to be contradicted, by what ſeems to be rather the effect of chance than deſign. Thoſe that have been hatched late, and have not acquired ſufficient ſtrength to accompany their companions in their journey, may alone have ſupplied the above-mentioned inſtances. Were all to remain, we ſhould undoubtedly be furniſhed with more numerous and more generally known examples than have hitherto been recorded. The ingenious Mr John Hunter, on diſſecting ſeveral ſwallows, obſerved in them nothing different from other birds in the organs of reſpiration, and hence inferred, perhaps too haſtily, that none of them can remain, for any length of time, under water. That the migration of ſwallows does, however, really take place, appears to have been fully proved by a variety of well atteſted facts, moſt of which have been obſerved by navigators, who were eye-witneſſes of the flights of theſe birds, and whoſe ſhips have ſometimes afforded

Passeres. forded to them resting places in the course of their toilsome progress. Passeres.

A. *Three toes before, and one behind.*

896 *Rustica.* *Chimney* or *common swallow.*—Front and chin chesnut; tail feathers, except the two middle ones, with a white spot; bill black; body blackish blue above, whitish beneath; tail very much forked; legs short and blackish; weight between five and six drams; length six inches and a half. Inhabits all the quarters of the world; visits us early in April, if the weather be mild, and retires about the end of September or beginning of October. It is supposed to winter in Senegal, and other warm countries. It has got the name of *chimney swallow*, from the circumstance of breeding in chimneys. It also nestles on the beams or rafters of out-houses, and sometimes on rocks. The nest is made of mud, plastered together, and lined with feathers, and is open at top. The eggs are four or five, white, and speckled with rusty red. Its velocity of wing and quickness of sight are truly astonishing, and enable it to pursue its prey with precision and effect. When a fly is taken, a smart snap from the bill is to be heard, not unlike the noise of the shutting of a watch case; but the motion of the mandibles is too quick for the eye. Wonderful is the address with which this bird ascends and descends through the passages of a chimney. When hovering over the roof of the funnel, the vibration of its wings acting on the confined air, occasion a rumbling like distant thunder. It is not improbable that the female submits to the inconvenience of having her nest low down in the shaft, in order to secure her offspring from the birds of prey, particularly from owls, which are frequently found to fall down chimneys, probably in their attempts to get at the nestlings. The progressive method by which the young are introduced to their proper habits, deserves to be noted. They first, though not without difficulty, emerge from the shaft, and, for a day or two, are fed on the chimney top; thence they are conducted to the dead leafless bough of some neighbouring tree, where, sitting in a row, they are attended by the parents with great assiduity. In a day or two after this they are strong enough to fly, but continue still unable to take their own food; they therefore play about near the place where the females are watching for flies; and, when a mouthful is collected, on a certain signal, the dam and the nestling advance, rising towards each other, and meeting at an angle, the young all the while, uttering a short quick note of gratitude and complacency. As soon as the mother has disengaged herself from the first brood, she immediatly commences her operations for a second, which is produced about the middle or latter end of August.

897 *Esculenta.* *Esculent swallow.*—Blackish, whitish beneath; all the tail feathers with a white spot; bill black; tail tipt with white; legs brown. Two inches and a quarter in length; in size rather less than the wren. Inhabits China and the islands of the Indian ocean. Many of our readers must have heard of the curious eatable nests of this species. The following is the account given of them by Sir George Staunton. "In the Cas, a small island near Sumatra, were found two caverns, running horizontally into the side of the rock; and in these were a number of those bird's-nests so much prized by the Chinese epicures. They seem to be composed of fine filaments, cemented together by a transparent viscous matter, not unlike what is left by the foam of the sea upon stones alternately covered by the tide, or those gelatinous animal substances found floating on every coast. The nests adhere to each other, and to the sides of the cavern; mostly in rows, without any break or interruption. The birds that build these nests are small gray swallows, with bellies of a dirty white. They were flying about in considerable numbers; but were so small, and their flight was so quick, that they escaped the shot fired at them. The same sorts of nests are said to be also found in deep caverns at the foot of the highest mountains in the middle of Java, at a distance from the sea: from which source it is thought that the birds derive no materials, either for their food, or the construction of their nests; as it does not appear probable they should fly in search of either, over the intermediate mountains, which are very high, or against the boisterous winds prevailing thereabout. They feed on insects, which they find hovering over stagnated pools between the mountains, and for the catching of which their wide-opening beaks are particularly adapted. They prepare their nests from the best remnants of their food. Their greatest enemy is the kite, who often intercepts them in their passage to and from the caverns, which are generally surrounded with rocks of gray limestone, or white marble. The nests are placed in horizontal rows, at different depths, from 50 to 500 feet. The colour and value of the nests depend on the quantity and quality of the insects caught, and perhaps also on the situation where they are built. Their value is chiefly ascertained by the uniform fineness and delicacy of their texture; those that are white and transparent being most esteemed, and fetching often in China their weight in silver.—These nests are a considerable object of traffic among the Javanese, many of whom are employed in it from their infancy. The birds, after having spent nearly two months in preparing their nests, lay each two eggs, which are hatched in about 15 days. When the young birds become fledged, it is thought the proper time to seize upon their nests; which is done regularly three times a-year, and is effected by means of ladders of bamboo and reeds, by which the people descend into the caverns: but when these are very deep, rope ladders are preferred. This operation is attended with much danger, and several perish in the attempt. The inhabitants of the mountains, generally employed in this business, begin always by sacrificing a buffalo; which custom is observed by the Javanese, on the eve of every extraordinary enterprise. They also pronounce some prayers, anoint themselves with sweet-scented oil, and smoke the entrance of the cavern with gum-benjamin. Near some of the caverns a tutelar goddess is worshipped, whose priest burns incense, and lays his protecting hands on every person preparing to descend. A flambeau is carefully prepared at the same time, with a gum which exudes from a tree growing in the vicinity, and which is not easily extinguished by fixed air or subterraneous vapours."—The nest of this species generally weighs about half an ounce; and is in shape something like a half lemon. The consistency of the several layers of component matter approaches to that of isinglass, or of fine gum-dragon. Such of these nests as are perfectly free from dirt, are dissolved in broth, to thicken it, and are said to give it an exquisite flavour; or they are soaked

in

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in water to soften them, then pulled in pieces, and, after being mixed with ginseng, are put into the body of a fowl. The whole is then stewed in a pot, with a sufficient quantity of water, and left on the coals all night. On the following morning it is ready to be eaten.

898 *Urbica.* *Martin*, *martlet*, *martinet*, or *house martin*.—Bluish-black above, white beneath; tail feathers without spots; bill black; mouth yellow; rump white; legs covered with a short white down. There is a variety that has the quill and tail feathers tipt with white. About five inches and a half, and rather inferior in size to the chimney swallow. Inhabits Europe, Asia, and North America. Visits Britain in spring, rather later than the common swallow, making its first appearance in low, warm situations, and if the weather is fine, beginning to build early in May. It builds a close nest, made of straw and clay, and lined with feathers, with a hole at top for admission, in windows, under the eaves of houses, the projecting ornaments of steeples and churches, &c. and sometimes against rocks or cliffs, contiguous to the sea. The eggs are four or five, and pure white. The manners and habits of this well known species nearly resemble those of the common swallow.

899 *Riparia.* *Sand martin*, *bank martin*, or *shore bird*.—Cinereous; chin and belly white; bill blackish; throat encircled with a mouse-coloured ring; legs black, and downy behind. Four inches and three quarters long. Inhabits Europe and America, in which last country it is called *ground swallow*. In this country it is not so plentiful as the preceding, with which it associates, and which in its manners it much resembles, except that it nestles in the banks of rivers or sand pits, and makes a nest of straw and dried fibres, lined with feathers.

900 *Purpurea.* *Purple swallow*.—Entirely violet; tail forked; bill black; legs blackish. Female brown. Seven inches and three quarters long. Inhabits Carolina and Virginia, during summer. Is much valued by the inhabitants for its use in alarming poultry on the approach of birds of prey, which it does not only by shrieking, but attacking them with the greatest fury.

901 *Subis.* Plate CCCCII. Fig. 3. *Canada swallow*.—Bluish black; beneath and mouth whitish-ash; belly white, clouded with brown; quill and tail feathers blackish, edged with brown; legs and claws dusky. Eight or nine inches long. Native of Hudson's bay.

902 *Ambrosiaca.* *Ambergrise swallow*.—Grayish-brown; bill blackish; legs brown. Five inches and a half long. Inhabits Senegal. Smells strongly of ambergrise.

903 *Erythrocephala.* *Red-headed swallow*.—Dusky-black, the feathers edged with white; under part of the body white; head red. Size of the least humming bird. Inhabits India.

904 *Nigra.* *Black swallow*.—Entirely black. Six inches long. Inhabits the interior parts of South America, and builds in a deep hole in the ground, with a long entrance.

905 *Apus.* *Swift*, *black martin*, &c.—Blackish; chin white. Weight nearly an ounce; length about eight inches. Inhabits almost every where. The swift makes its appearance with us later than any of the other species, being seldom seen till May. It frequents steeples, towers, and other lofty buildings, in the holes of which, or under the tiles of houses and barns, it makes a nest of dried grass, lined with feathers, which it collects on wing, sweeping them off the ground in a dexterous manner. Like the swallow, it sips the water, and at the same time, picks up flies as it skims over the surface. The female lays only two white eggs of an oblong shape, larger than that of the swallow; and while she is sitting, the male is continually flying to and from the spot, making a screeching noise, which is its only note. At night, both sit on the nest, or at least roost in the same hole. In very warm weather, these birds soar to a great height; but in cold or moist weather, fly low in search of flies and other winged insects, which at that time cannot ascend. This species disappears about the middle of August, remaining here no longer than is necessary for its breeding. It is remarkable that it disappears soonest in the best and warmest weather; and that in the very inclement season of 1782, numbers of them were seen in the neighbourhood of Edinburgh, so late as the 25th of August, flying about with their usual spirit and vivacity, when the thermometer stood at 36°. It is neither cold, therefore, nor the want of food, which disposes them to quit us so early. They have the process of moulting to undergo, which cannot be performe a state of torpor. Their place of retirement, however, has not been ascertained.

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906 *Cayennensis.* *White-collared swift*.—Blackish-violet; head black; collar bifid; ocular band and thighs white. Five inches and one quarter long. Inhabits Cayenne. Builds a long conical nest, with a division in the middle.

Gen. 91. CAPRIMULGUS, *Goatsucker*.

907 CAPRIMULGUS.

908 Characters. Bill slightly curved, very small, subulated and depressed at the base; mouth extremely wide, and furnished at the sides with a series of bristles; ears very large; tongue pointed and entire; tail unforked, with 10 feathers; legs short, middle claw with a broad serrated edge.

The birds of this family seldom appear in the day time, except they are disturbed, or in dark cloudy weather, but wander about in the evening, in search of insects. They lay two eggs on the naked ground. The lateral toes are connected to the middle one by a small membrane.

909 *Europæus.* *European* or *nocturnal goatsucker*; provincially, *night* or *dorrhawk*, *churn* or *goatowl*, *wheelbird*, *nightjarr*, &c.—Black, varied with cinereous, brown, ferruginous and white; beneath reddish-white, with brown bands; irides hazel; legs short, scaly, and feathered below the knees. The male is distinguished from the female by a large oval white spot near the end of the three first quill feathers, and another on the outmost tail feathers. Inhabits Europe, Asia, and America. With us this bird is only a summer visitant, appearing about the middle of May, and departing again the latter end of September, or beginning of October. It makes no nest, but lays two eggs on the bare ground, among fern, heath, or long grass, sometimes in woods or furze, but at all times contiguous to woods, in which it chiefly conceals itself by day. The eggs are larger than those of a blackbird, oblong oval, whitish, and elegantly marbled with light brown and ash-colour. It generally sits on the ground, but if molested, frequently perches on the limb of a tree, most commonly lengthwise, and not across, as is common with most birds. In the dusk of the evening, it begins its flight in pursuit of the larger insects, particularly *scarabæus melolontha*, and *solstitialis*, which rise from their earthy abode about that time. It is also fond of the large-bodied moths, and indeed allows few winged

Paſſeres. winged inſects to eſcape its wide extended gape. It makes a ſingular noiſe, like the ſound of a large ſpinning wheel, and which it is obſerved to utter perched, with the head lowermoſt; beſides which, it utters a ſharp ſqueak, as it flies. It has its name from the ancient, but

910 erroneous belief, that it ſucked the teats of goats.

Grandis. *Great goatſucker.*—Blackiſh, with ſmall brown ſpots and ſtreaks; area of the eyes yelloviſh; legs white; middle claw not ſerrated. Nearly two feet long. Inhabits Cayenne. The gape of its mouth can readily admit a man's fiſt.

911 *Novæ Hollandiæ.* *Creſted goatſucker.*—Waved with brown, black, and whitiſh; whitiſh beneath; neck and breaſt with duſky bands; creſt on the front erect, and ſetaceous. Nine inches and a half long. Inhabits New Holland. No account has hitherto been procured of its manners, except that it appears about our ſettlement at Port Jackſon in March.

912 *Longipennis.* *Leone goatſucker.*—Variegated gray; wings ſpotted with rufous and black; a very long naked-ſhafted feather on each ſhoulder. "This ſingular ſpecies," ſays Dr Latham, "is about the ſize of the *European* one, and not far different from it in the general markings: the length from the bill to the end of the tail is eight inches and a quarter; but the remarkable circumſtance belonging to it, is the having a ſingle feather ſpringing out of the middle part of the coverts of each wing, full 29 inches in length: this continues as a plain unwebbed ſhaft for 14 inches and three quarters, having a few ſolitary hairs, on the inſide only; from thence it expands into a broad web for the remaining five inches and a quarter of its length. This part is mottled, not unlike the darker part of the reſt of the plumage, and croſſed with five duſky bars; the web or blade has almoſt the whole of its breadth on the inner ſide, being there more than one inch broad, but very narrow on the outer part of the ſhaft; the legs are ſmall. Inhabits Sierra Leona in Africa; ſeveral of them have been brought into England," &c.—The ſame bird is deſcribed by Dr Shaw in his *Naturaliſts Miſcellany*.

913 MENURA. We have purpoſely reſerved for an Appendix, the following deſcription of *menura ſuperba*, a bird of New South Wales, by Major-general Thomas Davies, F. R. and L. S.

"MENURA.

Char. gen. *Roſtrum* validiuſculum, convexo-conicum.
Nares ovatæ in medio roſtri.
Rectrices elongatæ, pinnulis decompoſitis; intermediæ duæ longiores anguſtæ, exteriores ad apicem patulæ, revolutæ.
Pedes validi ambulatorii.

MENURA SUPERBA.

"The total length of this ſingular bird, from the point of the bill to the end of the broad tail feathers, is 43 inches; 25 of which are in the tail alone. The bill rather exceeds an inch in length, is ſtrong, formed much like that of a peacock, and black, with the noſtrils, which are long open ſlits, rather large, placed near the middle of its length; the head, which is ſomewhat creſted at the hind part, neck, ſhoulders, back, upper tail coverts, and upper ſurface of the tail feathers, of a dark browniſh-black; throat rufous, reaching ſome way down the middle of the neck; breaſt, belly, and vent gray; the feathers of the latter are long, very ſoft, and of a ſilky texture; thighs nearly of the ſame colour, rather long, and feathered down to the knee; ſcapulars of a browniſh tinge; upper tail coverts and prime quill feathers, which are ſomewhat curved at the ends, brown black; edges of the quills gray; the legs long and very ſtrong, covered with large ſcales, eſpecially in front; the feet, which are likewiſe large, and the nails, are black; the laſt ſomewhat crooked, convex above and flat beneath; the hind nail near three quarters of an inch long. Appendix.

"The tail conſiſts in the whole of 16 feathers; all of which, except the two upper or middle ones, and the two exterior on each ſide, have long ſlender ſhafts furniſhed on each ſide with delicate long filaments, four inches or more in length, placed pretty cloſe towards the rump, but more diſtant from each other as they approach the extremity, and reſemble much thoſe of the greater Paradiſe bird. The two middle or upper ones are longer than the reſt, ſlender, narrow at the baſe, growing wider as they approach the ends, which are pointed; webbed on the inner edge all the way, and furniſhed with ſome diſtant hair-like threads near the end on the outer ſide, of a pale gray colour beneath, and brown black above, as is the reſt of the tail. The two exterior feathers on each ſide are of an extraordinary conſtruction, rather more than an inch wide at the baſe, and growing wider as they proceed to the ends, where they are full two inches broad and curve outwardly; the curved part is black with a narrow white border; the quills of theſe feathers are double for two-thirds down from the rump. The general colour of the under ſides of theſe two feathers is of a pearly hue, elegantly marked on the inner web with bright rufous coloured creſcent-ſhaped ſpots, which, from the extraordinary conſtruction of the parts, appear wonderfully tranſparent, although at firſt ſight ſeemingly the darkeſt; they are alſo elongated into ſlender filaments of an inch or more, eſpecially towards the extremities.

"The figure of the male, which accompanies this deſcription, was taken from a ſpecimen ſent from New South Wales as a preſent to Lady Mary Howe. I have alſo ſeen two other ſpecimens in the poſſeſſion of the Right. Hon. Sir Joſeph Banks, which I believe have ſince been depoſited in the Britiſh Muſeum.

"Since I had the honour of communicating to the Linnæan Society the foregoing deſcription of the *menura*, I have been favoured with both male and female of that extraordinary bird from my friend Governor King, by the Buffalo ſtore ſhip; and I am thereby enabled to lay before the ſociety a deſcription of the different ſexes. I find, indeed, that, with a little deviation, the ſame characters and colours will ſerve for both of them. The female, however, is ſomewhat ſmaller, being in length, from the crown of the head to the end of the tail, only 31 inches. The general plumage of the whole bird is of a dull blackiſh colour, a little rufous under the chin and throat, and of a browniſh caſt on the ſcapulars, as in the male. The plumage of the whole body, from the breaſt to the vent, and from the ſhoulders to the rump, is compoſed of long, ſlender, thread-like, ſilky feathers, reſembling fringe, of a dull grayiſh-black; lighter on the breaſt, belly, and vent. The bill and legs, which are ſtrong and furniſhed with large ſcales, as in the cock, are black. From the head to the rump

Appendix. 14 inches; the tail 18 inches, alſo of a dull brown black colour above and gray beneath; the two upper tail feathers are ſharp-pointed at the ends; the reſt are rounded and darker in colour, and ſhorter by degrees, as they approach the rump, ſo as to appear cuneated; the two outer feathers are ſhorter than the reſt, but in form like thoſe of the male, brown black above, of a pearly gray beneath; and the creſcents, which are of a deeper rufous colour, are not ſo viſible nor ſo large, but more tranſparent if poſſible, than thoſe of the cock. They are about an inch and a half broad, and not black or longer at the ends as in the other ſex. Appendix.

"From theſe birds being found in the hilly parts of the country, they are called by the inhabitants the *mountain pheaſant*. With reſpect to their food or manners I have not as yet obtained any particular account. In my ſpecimens, there is a nakedneſs round the eyes, but whether this is from the feathers having fallen off I know not. I rather think otherwiſe, and that it may be brightly coloured as in many other birds."

EXPLANATION OF THE PLATES.

914 Explanation of plates.

Plate CCCXCIII. ACCIPITRES.

Fig. 1. *Vultur Percnopterus*, Aquiline Vulture.
2. *Falco Melanætos*, Black Eagle.
3. *Strix Zeylonenſis*, Ceylon Owl.
4. —— *Virginiana*, Virginian Owl.

Plate CCCXCIV. PICÆ.

Fig. 1. *Certhia Armillata*, Braceletted Creeper.
2. *Coracias Caudata*, Long-tailed Roller.
3. *Picus Cardinalis*, Cardinal Woodpecker.
4. *Cuculus Melanoleucos*, Coromandel Creſted Cuckoo.

Plate CCCXCV. PICÆ.

Fig. 1. *Merops Erythropterus*, Red-winged Bee-eater.
2. *Buceros Panayenſis*, Panay Hornbill
3. *Todus Criſtatus*, Creſted Tody.
4. *Momotus Braſilienſis*, Braſilian Motmot.
5. *Alcedo Criſtata*, Creſted King's-fiſher.

Plate CCCXCVI. ANSERES.

Fig. 1. *Anas Molliſſima*, Eider Duck.
2. *Mergus Serrator*, Red-breaſted Merganſer.
3. *Phaeton Æthereus*, Common Tropic Bird.
4. *Plotus Melanogaſter*, Black-bellied Darter.
5. *Diomedea Exulans*, Wandering Albatroſs, or Man of War Bird.

Plate CCCXCVII. ANSERES.

Fig. 1. *Alca Cirrata*, Tufted Auk.
2. —— *Tetracula*, Duſky Auk.
3. *Procellaria Pelagica*, Stormy Petrel.
4. *Colymbus Auritus*, Eared Grebe.
5. *Sterna Minuta*, Leſſer Tern.

Plate CCCXCVIII. GRALLÆ.

Fig. 1. *Phœnicopteros Ruber*, Red Flamingo.
2. *Tantalus Albus*, White Ibis.
3. *Ardea Egretta*, Great Egret.
4. *Scopus Umbretta*, Tufted Umbre.

Plate CCCXCIX. GRALLÆ.

Fig. 1. *Recurviroſtra Americana*, American Avocet.
2. *Charadrius Pileatus*, Hooded Plover.
3. *Hæmatopus Oſtralegus*, Sea-pie, or Pied Oyſter Catcher.
4. *Fulica Atra*, Common Coot.

Plate CCCC. GALLINÆ.

Fig. 1. *Otis Afra*, White-eared Buſtard.
2. *Struthio Camelus*, Black Oſtrich.
3. *Phaſianus Criſtatus*, Creſted Pheaſant.
4. *Crax Alector*, Female Creſted Curaſſow, Var. from Peru, *Lath. Synop.* 693.

Plate CCCCI. PASSERES.

Fig. 1. *Columba Marginata*, Marginated Turtle.
2. *Loxia Moluccenſis*, Molucca Groſbeak.
3. *Alauda Malabarica*, Malabar Lark.
4. *Muſcicapa Pygmæa*, Dwarf Fly-catcher.
5. *Parus Criſtatus*, Creſted Titmouſe.

Plate CCCCII. PASSERES.

Fig. 1. *Emberiza Regia*, Shaft-tailed Bunting.
2. *Colius Panayenſis*, Panayan Coly.
3. *Hirundo Subis*, Canada Swallow.
4. *Pipra Rupicola*, Rock Manakin.
5. *Tanagra Siberica*, Siberian Tanager.

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Abell Prin. Wales sculptor fecit.





Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.

Al. Bell Prin. Wal. Sculptor fecit.





A. Bell Prin. Wal. Sculptor fecit.





A. Bell Printer & Engraver fecit.




Fig. 1.
Fig. 2.
Fig. 3.
Fig. 4.
Fig. 5.
Albett Ann. Mal. Sculpterfecit.




Fig. 1.
Fig. 2.
Fig. 3.
Fig. 4.
Fig. 5.
A. Bell. Brin Wall Sculptor fecit.




Fig. 1.
Fig. 2.
Fig. 3.
Fig. 4.
A. Bell Prin. Mal. Sculptor fecit.




Fig. 1.
Fig. 2.
Fig. 3.
Fig. 4.
A Bell. Prin. Mal. Sculptor fecit.




Fig. 1.
Fig. 2.


Fig. 3.
Fig. 4.
A Bell Prin. Nat. Sculpter fecit.




Fig. 1.
Fig. 2.
Fig. 3.
Fig. 4.
Fig. 5.
A Bell Prin. Wal. Sculptor fecit




Fig. 1.
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ORO

Ornithomancy & Orobio.

ORNITHOMANCY, a ſpecies of divination performed by means of birds; being the ſame with augury. See DIVINATION and AUGURY.

ORNITHOPUS, a genus of plants belonging to the diadelphia claſs; and in the natural method ranking under the 32d order, *Papilionaceæ*. See BOTANY *Index*.

ORNITHORYNCHUS PARADOXUS, one of the moſt extraordinary animals of the mammalia claſs yet known, particularly for the ſingular conformation of its head, which is the perfect reſemblance of the beak of a duck ingrafted on the head of a quadruped. See MAMMALIA *Index*.

ORNUS FRAXINUS, is that ſpecies of the aſh tree, in the Linnæan ſyſtem, which, according to Dr Cirillo of Naples, produces the manna. See MATERIA MEDICA *Index*.

OROBANCHE, a genus of plants belonging to the didynamia claſs; and in the natural method ranking under the 40th order, *Perſonatæ*. See BOTANY *Index*.

OROBIO, DON BALTHASAR, a celebrated Jew of Spain. He was carefully educated in Judaiſm by his parents, who were Jews, though they outwardly profeſſed themſelves Roman Catholics; abſtaining from the practice of their religion in every thing, except only the obſervation of the faſt of expiation, in the month Tiſis or September. Orobio ſtudied the ſcholaſtic philoſophy uſual in Spain, and became ſo ſkilled in it, that he was made profeſſor of metaphyſics in the univerſity of Salamanca. Afterwards, however, applying himſelf to the ſtudy of phyſic, he practiſed that art at Seville with ſucceſs, till, accuſed of Judaiſm, he was thrown into the inquiſition, and ſuffered the moſt dreadful cruelties, in order to force a confeſſion. He himſelf tells us, that he was put into a dark dungeon, ſo ſtrait that he could ſcarce turn himſelf in it; and ſuffered ſo many hardſhips, that his brain began to be diſturbed. He talked to himſelf often in this way: "Am I indeed that Don Balthaſar Orobio, who walked freely about in Seville, who was entirely at eaſe, and had the bleſſings of a wife and children?" Sometimes, ſuppoſing that his paſt life was but a dream, and that the dungeon where he then lay was his true birth-place, and which to all appearance would alſo prove the place of his death. At other times, as he had a very metaphyſical head, he firſt formed arguments of that kind, and then reſolved them; performing thus the three different parts of opponent, reſpondent, and moderator, at the ſame time. In this whimſical way he amuſed himſelf from time to time, and conſtantly denied that he was a Jew. After having appeared twice or thrice before the inquiſitors, he was uſed as follows: At the bottom of a ſubterraneous vault, lighted by two or three ſmall torches, he appeared before two perſons, one of whom was judge of the inquiſition, and the other ſecretary; who, aſking him whether he would confeſs the truth? proteſted, that in caſe of a criminal's denial, the holy office would not be deemed the cauſe of his death if he ſhould expire under the torments, but that it muſt be imputed entirely to his own obſtinacy. Then the executioner ſtript off his clothes, tied his feet and hands with a ſtrong cord, and ſet him upon a little ſtool, while he paſſed the cord through ſome iron buckles which were fixed in the wall; then drawing away the ſtool, he remained hanging by the cord, which the executioner ſtill drew harder and harder, to make him confeſs, till a ſurgeon aſſured the court of examinants, that he could not poſſibly bear more without expiring. Theſe cords put him to exquiſite tortures, by cutting into the fleſh, and making the blood burſt from under his nails. As there was certainly danger that the cords would tear off his fleſh, to prevent the worſt, care was taken to gird him with ſome bands about the breaſt, which however were drawn ſo very tight, that he would have run the riſk of not being able to breathe, if he had not held his breath in while the executioner put the bands round him; by which device his lungs had room enough to perform their functions. In the levereſt extremity of his ſufferings, he was told that this was but the beginning of his torments, and that he would better confeſs before they proceeded to extremities. Orobio added further, that the executioner, being on a ſmall ladder, in order to frighten him, frequently let it fall againſt the ſhin-bones of his legs; ſo that the ſtaves being ſharp, created exquiſite pain. At laſt, after three years confinement, finding themſelves baffled by his perſeverance in denying his religion, they ordered his wounds to be cured, and diſcharged him. As ſoon as he had got liberty,

ORO

Orobio.

Orobio liberty, he reſolved to quit the Spaniſh dominions; and, going to France, was made profeſſor of phyſic at Thouloufe. The theſes which he made as candidate for this place were upon putrefaction; and he maintained them with ſo much metaphyſical ſubtlety, as embarraſſed all his competitors. He continued in this city for ſome time, ſtill outwardly profeſſing popery; but at laſt, weary of diſſembling, he repaired to Amſterdam, where he was circumciſed, took the name of Iſaac, and profeſſed Judaiſm; ſtill continuing, however, to practiſe phyſic, in which he was much eſteemed. Upon the publication of Spinoza's book, he deſpiſed a ſyſtem the falſeneſs of which he quickly diſcovered; and when Bredenbourg's anſwer to it came to his hands, Orobio, being perſuaded that the writer in refuting Spinoza, had alſo admitted ſome principles which tended to Atheiſm, took up his pen againſt them both, and publiſhed a piece to that purpoſe, intitled, *Certamen philoſophicum adverſus J. B. Principia*. But the diſpute which he held with the celebrated Philip Limborch againſt the Chriſtian religion made the greateſt noiſe. Here he exerted the utmoſt force of his metaphyſical genius, and carried himſelf with great temper. The three papers which he wrote on the occaſion were afterwards printed by his antagoniſt, in an account which he publiſhed of the controverſy, under the title of *Amica Collatio cum Judæo*. Orobio died in 1687,

OROBUS, BITTER VETCH, a genus of plants belonging to the diadelphia claſs; and in the natural method ranking under the 32d order, *Papilionaceæ*. See BOTANY *Index*.

ORODES, a prince of Parthia, who murdered his brother Mithridates, and aſcended his throne. He defeated Craſſus the Roman triumvir, and poured melted gold down the throat of his fallen enemy, to reproach him for his avarice and ambition. He followed the intereſt of Caſſius and Brutus at Philippi. It is ſaid, that when Orodes became old and infirm, his 30 children applied to him, and diſputed in his preſence the right to the ſucceſſion. Phraates, the eldeſt of them, obtained the crown from his father; and, to haſten him out of the world, he attempted to poiſon him. The poiſon had no effect; and Phraates, ſtill determined on his father's death, ſtrangled him with his own hands, about 36 years before the Chriſtian era. Orodes had then reigned about 50 years.

ORONOKO, a large river of South America, which riſes in Popayan, and enters the Atlantic ocean after a courſe of 755 leagues, in N. Lat. 9°. So great is its impetuoſity that it ſtems the moſt powerful tides, and preſerves the freſhneſs of its waters to the diſtance of 36 miles out at ſea.

ORONSA, a ſmall fertile iſland of Scotland, one of the Hebrides, ſeven miles weſt of Jura. Here are the ruins of an abbey, with many ſepulchral ſtatues, and ſome curious ancient ſculpture.

ORONTIUM, a genus of plants belonging to the hexandria claſs; and in the natural method ranking under the ſecond order, *Piperitæ*. See BOTANY *Index*.

ORPHAN, a fatherleſs child or minor; or one that is deprived both of father and mother.

ORPHEUS, a celebrated poet and muſician of antiquity. His reputation was eſtabliſhed as early as the time of the Argonautic expedition, in which he was himſelf an adventurer; and is ſaid by Apollonius Rhodius not only to have excited the Argonauts to row by the ſound of his lyre, but to have vanquiſhed and put to ſilence the ſirens by the ſuperiority of his ſtrains. Yet, notwithſtanding the great celebrity he had ſo long enjoyed, there is a paſſage in Cicero, which ſays, that Ariſtotle, in the third book of his *Poetics*, which is now loſt, *doubted if ſuch a perſon as Orpheus ever exiſted.* But as the work of Cicero, in which this paſſage occurs, is in dialogue, it is not eaſy to diſcover what was his own opinion upon the ſubject, the words cited being put into the mouth of Caius Cotta. And Cicero, in other parts of his writings, mentions Orpheus as a perſon of whoſe exiſtence he had no doubts. There are ſeveral ancient authors, among whom is Suidas, who enumerate five perſons of the name of *Orpheus*, and relate ſome particulars of each. And it is very probable that it has fared with Orpheus as with Hercules, and that writers have attributed to *one* the actions of *many*. But, however that may have been, we ſhall not attempt to collect all the fables that poets and mythologiſts have invented concerning him; they are too well known to need inſertion here. We ſhall, therefore, in ſpeaking of him, make uſe only of ſuch materials as the beſt ancient hiſtorians, and the moſt reſpectable writers among the moderns, have furniſhed towards his hiſtory. Orpheus.

Dr Cudworth, in his *Intellectual Syſtem**, after examining and confuting the objections that have been made to the being of an Orpheus, and with his uſual learning and abilities clearly eſtabliſhing his exiſtence, proceeds, in a very ample manner, to ſpeak of the opinions and writings of our bard, whom he regards not only as the firſt muſician and poet of antiquity, but as a great mythologiſt, from whom the Greeks derived the Thracian religious rites and myſteries. * Book i. ſect. 17.

"It is the opinion (ſays he) of ſome eminent philologers of later times, that there never was any ſuch perſon as Orpheus, except in Fairy land; and that his whole hiſtory was nothing but a mere romantic allegory, utterly devoid of truth and reality. But there is nothing alleged for this opinion from antiquity, except the one paſſage of Cicero concerning Ariſtotle; who ſeems to have meant no more than this, that there was no ſuch poet as Orpheus anterior to Homer, or that the verſes vulgarly called *Orphical*, were not written by Orpheus. However, if it ſhould be granted that Ariſtotle had denied the exiſtence of ſuch a man, there ſeems to be no reaſon why his ſingle teſtimony ſhould preponderate againſt the univerſal conſent of all antiquity; which agrees that Orpheus was the ſon of Oegar, by birth a Thracian, the father or chief founder of the mythological and allegorical theology amongſt the Greeks, and of all their moſt ſacred religious rites and myſteries; who is commonly ſuppoſed to have lived before the Trojan war, that is, in the time of the Iſraelitiſh judges, or at leaſt to have been ſenior both to Heſiod and Homer; and to have died a violent death, moſt affirming that he was torn in pieces by women, becauſe their huſbands deſerted them in order to follow him. For which reaſon, in the viſion of Herus Pamphilius, in Plato, Orpheus's ſoul paſſing into another body, is ſaid to have choſen that of a ſwan, a reputed muſical animal, on account of the great hatred he had conceived for all women, from the death which they had inflicted on him. And the hiſtoric truth of Orpheus was not only acknowledged by Plato, but alſo by Iſocrates, who lived before Ariſtotle,

Orpheus. ſtotle, in his oration in praiſe of Buſiris; and confirmed by the grave hiſtorian Diodorus Siculus, who ſays, that Orpheus diligently applied himſelf to literature, and when he had learned τα μυθολογημενα, or the mythological part of theology, he travelled into Egypt, where he ſoon became the greateſt proficient among the Greeks in the myſteries of religion, theology, and poetry. Neither was his hiſtory of Orpheus contradicted by Origen, when ſo juſtly provoked by Celſus, who had preferred him to our Saviour: and, according to Suidas, Orpheus the Thracian was the firſt inventor of the religious myſteries of the Greeks, and that religion was thence called Θρησκεια, *Threſkeia*, as if a Thracian invention. On account of the great antiquity of Orpheus, there have been numberleſs fables intermingled with his hiſtory; yet there appears no reaſon that we ſhould diſbelieve the exiſtence of ſuch a man."

Cudworth is alſo of opinion, that the poems aſcribed to Orpheus were either written by him, or that they were very ancient, and contained his doctrines. He farther argues, that though Orpheus was a polytheiſt, and aſſerted a multiplicity of gods, he nevertheleſs acknowledged one ſupreme unmade deity, as the original of all things; and that the Pythagoreans and Platoniſts not only had Orpheus in great eſteem, being commonly called by them the *Theologer*, but were alſo thought in great meaſure to have owed their theology and philoſophy to him, deriving it from his principles and traditions.

* Warburton. The biſhop of Glouceſter* ſpeaks no more doubtfully of the exiſtence of Orpheus than of Homer and Heſiod, with whom he ranks him, not only as a poet, but alſo as a theologian, and founder of religion.

The family of Orpheus is traced by Sir Iſaac Newton for ſeveral generations: "Seſac paſſing over the Helleſpont, conquers Thrace; kills Lycurgus king of that country; and gives his kingdom and one of his ſinging women to Oeagrus, the ſon of Tharops, and father of Orpheus; hence Orpheus is ſaid to have had the muſe Calliope for his mother.

He is allowed by moſt ancient authors to have excelled in poetry and muſic, particularly the latter; and that to ſuch a degree, that he is repreſented as taming the moſt ferocious animals, changing the courſe of the winds by his melody, and as cauſing the trees of the foreſt to dance in concert with his lyre. This account, though we muſt ſuppoſe it fabulous, yet proves his excellence to have been great before he could have given riſe to ſuch fictions. He is ſaid to have early cultivated the lyre, in preference to every other inſtrument: ſo that all thoſe who came after him were contented to be his imitators; whereas, according to Plutarch, he adopted no model; for before his time no other muſic was known, except a few airs for the flute. Muſic was ſo cloſely connected in ancient times with the moſt ſublime ſciences, that Orpheus united it not only with philoſophy, but with theology and legiſlation. He abſtained from eating animal food; and held eggs in abhorrence as aliment, being perſuaded that the egg ſubſiſted before the chicken, and was the principal of all exiſtence: both his knowledge and prejudices, it is probable, were acquired in Egypt, as well as thoſe of Pythagoras many ages after.

Burney's Hiſt. of Muſic.

With reſpect to his abſtaining from the fleſh of oxen, Geſner ſuppoſes it may have proceeded from the veneration ſhown to that animal ſo uſeful in tillage, in the Eleuſinian myſteries inſtituted in honour of Ceres, the goddeſs of agriculture. He might have added, that, as thoſe myſteries were inſtituted in imitation of thoſe eſtabliſhed in Egypt in honour of Oſiris and Iſis, this abſtinence from animal food was of the like origin, and a particular compliment to Apis. But Abbé Fragnir, in an ingenious diſſertation upon the *Orphic Life*, gives ſtill more importance to the prohibition; for as Orpheus was the legiſlator and humanizer of the wild and ſavage Thracians, who were cannibals, a total abolition of eating human fleſh could only be eſtabliſhed by obliging his countrymen to abſtain from every thing that had life. Orpheus.

With reſpect to theology, Diodorus Siculus tells us, that his father Oeagrus gave him his firſt inſtructions in religion, imparting to him the myſteries of Bacchus, as they were then practiſed in Thrace. He became afterwards a diſciple of the Idæi Dactyli in Crete, and there acquired new ideas concerning religious ceremonies. But nothing contributed ſo much to his ſkill in theological matters, as his journey into Egypt; where being initiated into the myſteries of Iſis and Oſiris, or of Ceres and Bacchus, he acquired a knowledge concerning initiations, expiations, funeral rites, and other points of religious worſhip, far ſuperior to any one of his age and country. And being much connected with the deſcendants of Cadmus, the founder of Thebes in Bœotia, he reſolved, in order to honour their origin, to tranſport into Greece the whole fable of Oſiris, and apply it to the family of Cadmus. The credulous people eaſily received this tale, and were much flattered by the inſtitution of the ceremonies in honour of Oſiris. Thus Orpheus, who was held in great veneration at the Grecian Thebes, of which he was become a citizen, admirably adapted this fable, and rendered it reſpectable, not only by his beautiful verſes and manner of ſinging them, but by the reputation he had acquired of being profoundly ſkilled in all religious concerns. Diodorus Siculus alſo ſays that he was a moſt attentive ſtudent in all kinds of literature, whether ſacred or profane. *Diod. Siculus*, lib. iv. cap. 25.

At his return into Greece, according to Pauſanias, he was held in the higheſt veneration by the people, as they imagined he had diſcovered the ſecret of expiating crimes, purifying criminals, curing diſeaſes, and appeaſing the angry gods. He formed and promulgated an idea of a hell, from the funeral ceremonies of the Egyptians, which was received throughout all Greece. He inſtituted the myſteries and worſhip of Hecate among the Eginetes, and that of Ceres at Sparta.

Juſtin Martyr ſays, that he introduced among the Greeks near 360 gods; Heſiod and Homer purſued his labours, and followed the ſame clue, agreeing in the like doctrines, having all drank at the ſame Egyptian fountain.

Prophane authors look upon Orpheus as the inventor of that ſpecies of magic called *evocation of the manes*, or raiſing ghoſts: and indeed the hymns which are attributed to him are moſtly pieces of incantation, and real conjuration. By all accounts he was an admirable muſician: he is ſaid to have received a lyre from Apollo, or according to ſome from Mercury, upon which he played with ſuch a maſterly hand, that even the moſt rapid rivers ceaſed to flow, the ſavage beaſts of the foreſt

Orpheus. reſt forgot their wildneſs, and the mountains came to liſten to his ſong. All nature ſeemed charmed and animated, and the nymphs were his conſtant companions. Eurydice was the only one who made a deep impreſſion on the melodious muſician, and their nuptials were celebrated. Their happineſs, however, was but ſhort; for Ariſtæus became enamoured of her; and as ſhe fled from her purſuer, a ſerpent that was lurking in the graſs bit her foot, and ſhe died of the poiſoned wound. Her loſs was ſeverely felt by Orpheus, and he reſolved to recover her or periſh in the attempt, With his lyre in his hand, he entered the infernal regions, and gained an eaſy admiſſion to the palace of Pluto. The king of hell was charmed with the melody of his ſtrains; and according to the beautiful expreſſions of the poets, the wheel of Ixion ſtopped; the ſtone of Siſyphus ſtood ſtill; Tantalus forgot his perpetual thirſt, and even the furies relented. Pluto and Proſerpine were moved with his ſorrow, and conſented to reſtore him Eurydice, provided he forbore looking behind him till he had come to the extremeſt borders of hell. The conditions were gladly accepted, and Orpheus was already in ſight of the upper regions of the air, when he forgot his promiſe, and turned back to look at his long loſt Eurydice.

All dangers paſt, at length the lovely bride
In ſafety goes, with her melodious guide;
Longing the common light again to ſhare,
And draw the vital breath of upper air:
He firſt, and cloſe behind him followed ſhe;
For ſuch was Proſerpine's ſevere decree.
When ſtrong deſires th' impatient youth invade;
By little caution, and much love betrayed:
A fault which eaſy pardon might receive,
Were lovers judges, or could hell forgive.
For near the confines of etherial light,
And longing for the glimm'ring of a ſight,
Th' unwary lover caſt a look behind,
Forgetful of the law, nor maſter of his mind.
Straight all his hopes exhal'd in empty ſmoke;
And his long toils were forfeit for a look.
DRYDEN's Virgil.

He ſaw her, but ſhe inſtantly vaniſhed from his eyes: He attempted to follow her, but he was refuſed admiſſion; and the only comfort he could find was to ſooth his grief at the ſound of his muſical inſtrument in grottoes or on the mountains. He totally ſeparated himſelf from the ſociety of mankind; and the Thracian women, whom he had offended by his coldneſs to their amorous paſſion, or, according to others, by his unnatural gratifications and impure indulgencies, attacked him while they celebrated the orgies of Bacchus; and after they had torn his body to pieces, they threw his head into the Hebrus, which ſtill articulated the words Eurydice! Eurydice! as it was carried down the ſtream into the Ægean ſea. Others think, that, as he attempted to conjure his wife from the dead, which they underſtand by the ſtory of his going down to hell, he thought he ſaw her; and when afterwards, on looking back, he miſſed her, he died of grief. There is certainly ſome reaſon for ſuppoſing this to be the caſe: for there were perſons and temples publicly appointed for the purpoſe; and Pauſanias really ſpeaks of that temple which was in Theſprotia, and where Orpheus went to call up the ghoſt of Eurydice. Poets often mention this ſubject; and inſtances of it occur in hiſtory both ſacred and profane. The witch of Endor is well known to thoſe who read the hiſtorical part of the Bible. But to particulariſe inſtances, whether ſacred or profane, would be endleſs. Some maintain that he was killed by a thunder-bolt. He was buried at Pieria in Macedonia, according to Apollodorus. The inhabitants of Dion boaſted that his tomb was in their city, and the people of Mount Libethrus in Thrace claimed the ſame honour; and farther obſerved that the nightingales which built their neſts near his tomb, ſang with greater melody than all other birds. Orpheus, as ſome report, after death received divine honours; the muſes gave an honourable burial to his remains, and his lyre became one of the conſtellations in the heavens. Orpheus.

Tzetzes explains the fable of his drawing his wife Eurydice from hell, by his great ſkill in medicine, with which he prolonged her life, or, in other words, ſnatched her from the grave. Æſculapius, and other phyſicians, have been ſaid to have raiſed from the dead thoſe whom they had recovered from dangerous diſeaſes.

The biſhop of Glouceſter, in his learned, ample, and admirable account of the Eleuſinian myſteries, ſays, "While theſe myſteries were confined to Egypt their native country, and while the Grecian lawgivers went thither to be initiated, as a kind of deſignation to their office, the ceremony would be naturally deſcribed in terms highly allegorical. This way of ſpeaking was uſed by Orpheus, Bacchus, and others: and continued even after the myſteries were introduced into Greece, as appears by the fables of Hercules, Caſtor, Pollux, and Theſeus's deſcent into hell; but the allegory was ſo circumſtanced, as to diſcover the truth concealed under it. So Orpheus is ſaid to get to hell by the power of his harp:

Threicia fretus cithara, fidibuſque canoris.
VIRG. Æn. vi. ver. 119.

That is, in quality of lawgiver; the harp being the known ſymbol of his laws, by which he humanized a rude and barbarous people.—Had an old poem, under the name of *Orpheus*, intitled *A deſcent into Hell*, been now extant, it would perhaps have ſhown us, that no more was meant than Orpheus's *initiation*." See MYSTERIES.

Many ancient writers, in ſpeaking of his death, relate, that the Thracian women, as hinted at above, enraged at being abandoned by their huſbands, who were diſciples of Orpheus, concealed themſelves in the woods, in order to ſatiate their vengeance; and, notwithſtanding they poſtponed the perpetration of their deſign ſome time through fear, at length, by drinking to a degree of intoxication, they ſo far fortified their courage as to put him to death. And Plutarch aſſures us, that the Thracians ſtigmatized their women, even in his time, for the barbarity of this action.

Our venerable bard is defended by the author* of the *Divine Legation*, from ſome inſinuations to his diſadvantage in Diogenes Laertius. "It is true (ſays he), if uncertain report was to be believed, the myſteries were corrupted very early; for Orpheus himſelf is ſaid to have abuſed them. But this was an art the debauched myſtæ of later times employed to varniſh their enormities; * Warburton.

Orpheus. mities; as the deteſted pæderaſts of after ages ſcandalized the blameleſs Socrates. Beſides, the ſtory is ſo ill laid, that it is detected by the ſureſt records of antiquity; for in conſequence of what they fabled of Orpheus in the myſteries, they pretended he was torn in pieces by the women; whereas it appeared from the inſcription on his monument at Dium, in Macedonia, that he was ſtruck dead with lightning, the envied death of the reputed favourites of the gods."

This monument at Dium, conſiſting of a marble urn on a pillar, was ſtill to be ſeen in the time of Pauſanias. It is ſaid, however, that his ſepulchre was removed from Libethra, upon Mount Olympus, where Orpheus was born, and from whence it was transferred to Dium by the Macedonians, after the ruin of Libethra by a ſudden inundation which a dreadful ſtorm had occaſioned. This event is very minutely related by Pauſanias.

Virgil beſtows the firſt place in his Elyſium upon the legiſlators, and *thoſe who brought mankind from a ſtate of nature into ſociety:*

Magnanimi heroës, nati melioribus annis.

At the head of theſe is Orpheus, the moſt renowned of the European lawgivers, but better known under the character of a poet: for the firſt laws being written in meaſure, to allure men to learn them, and, when learnt, to retain them, the fable would have it, that by the force of harmony Orpheus ſoftened the ſavage inhabitants of Thrace:

——Threïcius longa cum veſte ſacerdos
Obloquitur numeris ſeptem diſcrimina vocum:
Jamque eadem digitis, jam pectine pulſat eburno.
ÆN. lib. vi. ver. 645.

The ſeven ſtrings given by the poet in this paſſage to the lyre of Orpheus, is a circumſtance ſomewhat hiſtorical. The firſt Mercurean lyre had, at moſt, but four ſtrings. Others were afterwards added to it by the ſecond Mercury, or Amphion: but, according to ſeveral traditions preſerved by Greek hiſtorians, it was Orpheus who completed the ſecond tetrachord, which extended the ſcale to a heptachord, or *ſeven ſounds* implied by the *ſeptem diſcrimina vocum*. For the aſſertion of many writers, that Orpheus added two new ſtrings to the lyre, which before had ſeven, claſhes with the claims of Pythagoras to the invention of the octachord, or addition of the ſound *proſlambanomenos* to the heptachord, of which almoſt all antiquity allows him to have been the inventor. And it is not eaſy to ſuppoſe, that the lyre ſhould have been repreſented in ancient ſculpture with four or five ſtrings only, if it had had nine ſo early as the time of Orpheus, who flouriſhed long before ſculpture was known in Greece. See the article LYRE.

With reſpect to the writings of Orpheus, he is mentioned by Pindar as author of the Argonautics, and Herodotus ſpeaks of his Orphics. His hymns, ſays Pauſanias, were very ſhort, and but few in number: the Lycomides, an Athenian family, knew them by heart, and had an excluſive privilege of ſinging them, and thoſe of their old poets, Muſæus, Onomacritus, Pamphus, and Olen, at the celebration of the Eleuſinian myſteries; that is, the prieſthood was hereditary in this family.

Jamblicus tells us, that the poems under the name of *Orpheus* were written in the Doric dialect, but have ſince been tranſdialected, or modernized. It was the common opinion in antiquity that they were genuine; but even thoſe who doubted of it, gave them to the earlieſt Pythagoreans, and ſome of them to Pythagoras himſelf, who has frequently been called the *follower of Orpheus*, and has been ſuppoſed to have adopted many of his opinions. Orpheus ‖ Orpine.

Of the poems that are ſtill ſubſiſting under the name of *Orpheus*, which were collected and publiſhed at Nuremberg 1702, by Andr. Chriſt. Eſchenbach, and which have been reprinted at Leipſic 1764, under the title of ΟΡΦΕΩΣ ΑΠΑΝΤΑ, ſeveral have been attributed to Onomacritus, an Athenian, who flouriſhed under the Pyſiſtratidæ, about 500 years before Chriſt. Their titles are, 1. The Argonautics, an epic poem. 2. Eighty-ſix hymns; which are ſo full of incantations and magical evocation, that Daniel Heinſius has called them *veram Satanæ liturgiam*, "the true liturgy of the devil." Pauſanias, who made no doubt that the hymns ſubſiſting in his time were compoſed by Orpheus, tells us, that though leſs elegant, they had been preferred for religious purpoſes to thoſe of Homer. 3. *De lapidibus*, a poem on precious ſtones. 4. Fragments, collected by Henry Stevens. Orpheus has been called the *inventor*, or at leaſt the *propagator*, of many arts and doctrines among the Greeks. 1. The *combination of letters*, or the art of writing. 2. *Muſic*, the lyre, or *cithara*, of ſeven ſtrings, adding three to that of Mercury. 3. *Hexameter verſe*. 4. *Myſteries* and *theology*. 5. *Medicine*. 6. *Magic* and *divination*. 7. *Aſtrology*. Servius upon the ſixth Æneid, p. 450. ſays, Orpheus firſt inſtituted *the harmony of the ſpheres*. 8. He is ſaid likewiſe to have been the firſt who imagined a *plurality of worlds*, or that the moon and planets were inhabited.

ORPHEUS, in *Ichthyology*, the name of a fiſh caught in the Archipelago. It is of a broad and flat figure, and of a fine purple colour; its eyes are large and prominent, and its teeth ſerrated; it has only one fin on the back, and the anterior rays of that are prickly, the others ſoft to the touch; its anus is ſmall, and is ſaid to have no paſſage for the ſemen.

This was the fiſh called *orpheus* by the ancients, but the modern Greeks call another fiſh by that name. It is a ſpecies of the ſparus, of a flat figure, but very thick, has a ſmall mouth, and is covered with ſmall but very rough ſcales, which adhere very firmly to the fleſh; the tail is not forked; it has fleſhy lips, and very ſmall teeth; its back and ſides are black; its belly white: it has a large black ſpot at the root of the tail; its head is reddiſh, and its fins are very elegantly diverſified with various colours; it has only one back-fin, and that has the anterior ray prickly, the hinder ones not at all ſo. It grows ſometimes to 20 pounds weight, and is much eſteemed among the modern Greeks.

ORPIMENT, *auripigmentum*, in *Natural Hiſtory*, a mineral which is compoſed of ſulphur and arſenic, found native in the earth, and conſtituting one of the ores of arſenic, but ſometimes artificially prepared. It is of two kinds, red and yellow. See ARSENIC, MINERALOGY *Index*, and ARSENIC under ORES, *Reduction of*.

ORPINE. See SEDUM, BOTANY *Index*.

Orrery || Orthography.

ORRERY, a curious machine for repreſenting the motions or phaſes of the heavenly bodies. See ASTRONOMY, p. 171.

The reaſon of its being called an *Orrery* was this: Mr Rowley, a mathematical inſtrument maker, having got one from Mr George Graham, the original inventor, to be ſent abroad with ſome of his own inſtruments, he copied it, and made the firſt for the earl of Orrery. Sir Richard Steele, who knew nothing of Mr Graham's machines, thinking to do juſtice to the firſt encourager, as well as to the inventor of ſuch a curious inſtrument, called it an *Orrery*, and gave Mr Rowley the praiſe due to Mr Graham.

ORRERY, *Earls of.* See BOYLE.

ORRICE. See IRIS, BOTANY *Index*.

ORTEGAL, CAPE, the moſt northern promontory of Spain, where there is alſo a caſtle of the ſame name. W. Long. 8. 20. N. Lat. 44. 0.

ORTELIUS, ABRAHAM, a celebrated geographer, born at Antwerp, in 1527, was well ſkilled in the languages and the mathematics, and acquired ſuch reputation by his ſkill in geography, that he was ſurnamed the *Ptolemy of his time*. Juſtus Lipſius, and moſt of the great men of the 16th century, were Ortelius's friends. He reſided at Oxford in the reign of Edward VI. and came a ſecond time into England in 1577. His *Theatrum Orbis* was the compleateſt work of the kind that had ever been publiſhed, and gained him a reputation equal to his immenſe labour in compiling it. He alſo wrote ſeveral other excellent geographical works; the principal of which are his *Theſaurus*, and his *Synonyma Geographica*. The world is likewiſe obliged to him for the *Britannia*, which he perſuaded Camden to undertake. He died at Antwerp in 1598.

ORTHEZ, a city in the province of Bearn, and before the Revolution, a biſhop's ſee. The cathedral is a wretched edifice, very ancient, built in a barbarous ſtyle, and almoſt in ruins. The remains of the caſtle of Orthez are very noble, and its ſituation is fine, on a hill which commands the town and a great extent of country. The people call it *Le Chateau de la Reine Jeanne*, becauſe that queen reſided in it during many years, in preference to the caſtle of Pau. Some of the apartments, though in ruins, may yet be entered. The princeſs Blanche, daughter to John king of Arragon and Navarre, was ſhut up, and died here, in 1464. Her brother being dead, ſhe became heireſs to the crown of Navarre; but her father having delivered her into the hands of her younger ſiſter Leonora counteſs of Foix, ſhe confined the unhappy Blanche in the caſtle of Orthez, and, after an impriſonment of two years, cauſed her to be poiſoned.

ORTHODOX, in church hiſtory, an appellation given to thoſe who are ſound in all the articles of the Chriſtian faith.

ORTHOGRAPHIC PROJECTION *of the* SPHERE, that wherein the eye is ſuppoſed to be at an infinite diſtance; ſo called, becauſe the perpendiculars, from any point of the ſphere, will all fall in the common interſection of the ſphere with the plane of the projection. See GEOGRAPHY and PROJECTION.

ORTHOGRAPHY, that part of grammar which teaches the nature and affections of letters, and the juſt method of ſpelling or writing words, with all the proper and neceſſary letters, making one of the four greateſt diviſions or branches of grammar. See GRAMMAR.

Orthography || Orvieto.

ORTHOGRAPHY, in *Geometry*, the art of drawing or delineating the fore-right plan of any object, and of expreſſing the heights or elevations of each part. It is called *Orthography*, for its determining things by perpendicular lines falling on the geometrical plane.

ORTHOGRAPHY, in *Architecture*, the elevation of a building.

ORTHOGRAPHY, in *Perſpective*, is the fore-right ſide of any plane, i. e. the ſide or plane that lies parallel to a ſtraight line, that may be imagined to paſs through the outward convex points of the eyes, continued to a convenient length.

ORTHOPNOEA, a ſpecies or degree of aſthma, where there is ſuch a difficulty of reſpiration that the patient is obliged to ſit or ſtand upright in order to be able to breathe. See MEDICINE *Index*.

ORTIVE, in *Aſtronomy*, the ſame with eaſtern. The ortive or eaſtern amplitude, is an arch of the horizon intercepted between the place where a ſtar riſes, and the eaſt point of the horizon, or point where the horizon and equator interſect.

ORTOLAN. See EMBERIZA, ORNITHOLOGY *Index*.

ORTNAU, a county of Germany, in the circle of Suabia, lying along the Rhine, and ſeparating it from Alſace. It is bounded on the ſouth by Breſlau, on the north by the margravate of Baden, and on the eaſt by the duchy of Wirtemberg. It contains three imperial towns; namely, Offenburg, Gegenbach, and Zell. It belongs partly to the houſe of Auſtria, partly to the biſhopric of Spire, and partly to the county of Hannau.

ORTYGIA, the birthplace of Diana, was a beautiful grove of trees of various kinds, chiefly cypreſſes, near Epheſus; on the coaſt, a little up from the ſea. This place was filled with ſhrines and images. The prieſts of the goddeſs were eunuchs, and exceedingly reſpected by the people. A general aſſembly was held there yearly, and ſplendid entertainments were provided, and myſtic ſacrifices ſolemnized. The Cenchrius, probably a crooked river, ran through it; and above it was the mountain Solmiſſus, on which, it was fabled, the Curetes ſtood, and rattled on their ſhields, to divert the attention of Juno. The improved face of a country is periſhable like human beauty. Not only the birthplace of Diana and its ſanctity are forgotten, but the grove and buildings which adorned it appear no more; and perhaps, ſays Dr Chandler, the land has encroached on the ſea, and the valley, in which Arviſia is, was once Ortygia. See EPHESUS, and DIANA, &c.

ORVIETO, a town of Italy, in the patrimony of St Peter, with a biſhop's ſee, and a magnificent palace. It is the capital of the province of Orvietano, in the eccleſiaſtic ſtate, in E. Long. 13. Lat. 43. It is a large ſtrong town, ſituated at the conflux of the Tiber and the Chiane, on a ſteep hill, ſurrounded on every ſide with rocks and precipices. To this ſituation it is owing that it has no ſprings; but there is a very ſurpriſing well cut into the rock, to ſupply it with freſh water. The mules, which bring up the water on their backs, go down by a ſtaircaſe of 150 ſteps, and 60 windows, and come up by another, without meeting. The architect

of

Orvieto, Oryza.

of this ſingular building was the famous Antonio de San Gallo, employed by Clement VII. At the entrance is this inſcription, *Quod natura munimento invideràt, induſtria adjecit.* This city, called *Herbanum* by Pliny, and *Urbevetanum* by Procopius, is the ſee of a biſhop ſuffragan of Rome. The cathedral, which is of Gothic architecture, is a handſome building, which was begun in 1260 by Nicolo Piſano. The front is adorned with fine ſtatues, among the reſt the Virgin Mary and the four Evangeliſts, with a baſſo-relievo of the laſt judgement, by the ſaid Nicolo Piſano, and others repreſenting ſome hiſtories of the Old Teſtament. The other half of the front is a ſurpriſing work in Moſaic, by Scalzi, expreſſing the hiſtory of the New Teſtament. In the church there is a very fine organ, and a baſſo-relievo of Raphael da Monte Lupo. Here is alſo a chapel, which was begun to be painted by F. Angelo, a dominican, and finiſhed by Luke Signorelli, where you ſee a very beautiful repreſentation of the laſt judgement. Orvieto was once a potent and populous city, but is now much upon the decline.

ORYZA, RICE, a genus of plants belonging to the hexandria claſs, and in the natural method ranking under the 4th order, *Gramina*. See BOTANY *Index*.

There is but one ſpecies, namely the ſativa, or common rice. This plant is greatly cultivated in moſt of the eaſtern countries, where it is the chief ſupport of the inhabitants; and great quantities of it are brought into England and other European countries every year, where it is much eſteemed for puddings, &c. it being too tender to be produced in theſe northern countries without the aſſiſtance of artificial heat; but from ſome ſeeds which were formerly ſent to Carolina there have been great quantities produced, and it is found to ſucceed as well there as in the eaſt.

This plant grows upon moiſt ſoils, where the ground can be flowed over with water after it is come up. So that whoever would cultivate it in this country ſhould ſow the ſeeds upon a hot-bed; and when the plants are come up, they ſhould be removed into pots filled with light rich earth, and placed in pans of water, which ſhould be plunged into a hot-bed; and, as the water waſtes, it muſt from time to time be renewed again. In July theſe plants may be ſet abroad in a warm ſituation, ſtill preſerving the water in the pans, otherwiſe they will not thrive; and, toward the latter end of Auguſt, they will produce their grain, which will ripen tolerably well, provided the autumn proves favourable. The leaves of rice are long, like the reed, and fleſhy; the flowers blow on the top like barley; but the ſeed which follows is diſpoſed in cluſters, each of which is incloſed in a yellow huſk, ending in a ſpiral thread. The ſeed is oblong, or rather oval, and white.

Rice is the chief commodity and riches of Damietta in Egypt. Dr Haſſelquiſt gives the following deſcription of the manner in which they dreſs and ſeparate it from the huſks. "It is pounded by hollow iron peſtles of a cylindrical form, lifted up by a wheel worked by oxen. A perſon ſitting between the two peſtles, puſhes forward the rice when the peſtles are riſing; another ſifts, winnows, and lays it under the peſtles. In this manner they continue working it until it is entirely free from chaff and huſks. When clean, they add a 30th part of ſalt, and pound them together; by which the rice, formerly gray, becomes white. After this purification, it is paſſed through a fine ſieve to part the ſalt from the rice; and then it is ready for ſale." Damietta ſells every year 60,800 ſacks of rice, the greateſt part of which goes to Turkey, ſome to Leghorn, Marſeilles, and Venice.

Oryzivora ‖ Oſcilla.

ORYZIVORA, called the rice-bird of Cateſby, a ſpecies of emberiza, which ſee, ORNITHOLOGY *Index*.

OSCHOPHORIA, a feſtival celebrated by the Athenians, which receives its name απο του φερειν τας οσχας, "from carrying boughs hung up with grapes," called οσχαι. The original inſtitution is thus mentioned by *Plut. in Theſſ.* Theſeus, on returning from Crete, forgot to hang out the white ſail, by which his father was to be apprized of his ſucceſs. This neglect proved fatal to Ægeus, for he threw himſelf into the ſea, and periſhed. Theſeus no ſooner reached the land, than he ſent a herald to inform his father of his ſafe return, and in the mean time he began to make the ſacrifices which he had vowed to make when he firſt ſet ſail from Crete. The herald, on his entrance into the city, found the people in great agitation. Some lamented the king's death, while others, elated at the ſudden news of the victory of Theſeus, crowned the herald with garlands in token of their joy. The herald carried back the garlands on his ſtaff to the ſea ſhore; and, after waiting till Theſeus had finiſhed his ſacrifice, he related the melancholy account of the king's death. Upon this the people ran in crowds to the city, ſhowing their grief by cries and lamentations.—From this circumſtance, therefore, at the feaſt of Oſchophoria, not the herald but his ſtaff is crowned with garlands, and all the people that are preſent always exclaim ελελευ, ιυ, ιυ, the firſt of which expreſſes haſte, and the others a conſternation or depreſſion of ſpirits. The hiſtorian further mentions, that Theſeus, when he went to Crete, did not take with him the uſual number of virgins, but that in the place of two of them, he took two youths of his acquaintance, whom he cauſed to paſs for women, by diſguiſing their dreſs, and by accuſtoming them to the ointments and perfumes of women, as well as by a long and ſucceſsful imitation of their voice. The impoſition ſucceeded; their ſex was not diſcovered in Crete; and when Theſeus had triumphed over the Minotaur, he with theſe two young men led a proceſſion, with branches in their hands, in the ſame habit, which is ſtill uſed at the celebration of the feſtival. The branches which were carried were in honour of Bacchus or Ariadne, or becauſe they returned in autumn, when the grapes were ripe. Beſides this proceſſion, there was alſo a race, in which young men only whoſe parents were both alive were permitted to engage. It was cuſtomary for them to run from the temple of Bacchus to that of Minerva, which was on the ſea ſhore. The place where they ſtopped was called οσχοφοριον, becauſe the boughs which they carried in their hands were depoſited there. The rewards of the conqueror was a cup called πενταπλοα, "five-fold," becauſe it contained a mixture of five different things, wine, honey, cheeſe, meal, and oil.

OSCILLA, ſmall images of wax or clay made in the ſhape of men or women, and conſecrated to Saturn, to render him propitious. The word is ſometimes uſed to ſignify a kind of maſks ſcooped from the bark of trees, and worn by the performers of comedy in the ruder ages of Rome. In this ſenſe we find it in Virg. Geo. ii. 386. It alſo ſignifies little heads or images of

Oseney-Island, Ofiris.

Bacchus, which the country men of old hung upon trees, that the face might turn every way, out of a notion that the countenance of this god gave felicity to themſelves, and fertility to their vineyards. An alluſion to this opinion and cuſtom is alſo found in Virgil, Geo. ii. 388.

OSENEY-ISLAND, in England, is formed by the river Iſis, in the meadows near Oxford, where a magnificent abbey was erected, at the inſtigation of a concubine of King Henry I. to atone for her ſins; and the ſaid king built a palace there, wherein King Richard I. was born, which Edward II. converted into a monaſtery.

OSIRIS, in *Mythology*, one of the gods of ancient Egypt, and very generally believed to have been the ſun, or at leaſt the mind actuating that luminary.

The Egyptians derived all things from two principles, an *active* and a *paſſive*. Their active principle, according to the learned Jablonſki *, was an infinite and eternal *ſpirit*; and their paſſive principle was *night*. This ſpirit they conſidered ſometimes as a *male*, ſometimes as a *female*, divinity, and occaſionally they attributed it to *both ſexes*; but it does not appear to have been the object of their worſhip. It ſhall be ſhown elſewhere (ſee POLYTHEISM), that the earlieſt objects of pagan adoration were the ſun, moon, and planets; and that the philoſophers and prieſts of ancient Egypt worſhipped the ſun by the name of *Oſiris*, may be proved by numberleſs teſtimonies from the moſt authentic records of antiquity. Diogenes Laertius affirms, that they held the ſun and moon for divinities, and that they called the latter *Iſis*; and Macrobius ſays expreſsly, "Nec in occulto eſt, neque aliud eſſe *Oſirin* quam *ſolem*, nec *Iſim* aliud eſſe quam *terram*." The ſame writer informs us, that in the hieroglyphic writings of ancient Egypt, "Oſiris was repreſented by a ſceptre and an eye," to denote that this god was the *ſun* looking down from heaven on all things upon earth.

* *Panth. Ægypt.*

It muſt not, however, be concealed, that ſome of the ancients, and few of the moſt learned moderns, have contended, that by *Oſiris* the Egyptians underſtood the Nile or ſpirit of the Nile, whilſt others have confounded them with the Grecian Bacchus. Scaliger and Selden have adopted the former of theſe opinions, and Servius on Virgil has given his countenance to the latter. But that they are all miſtaken, has been evinced by Jablonſki in ſuch a manner as to enforce the fulleſt conviction: "When the Egyptians, in their ſacred books, ſometimes gave the name of *Oſiris* to the Nile and its wonderful increaſe during the heat of ſummer, they mean nothing more (ſays he) but to attribute to their god Oſiris the gift which fertilizes their country." This they would the more readily do that they believed the Nile to have its ſource in heaven. Hence Euſebius tells us †, Οσιρις εστιν ὁ Νειλος, ὁν εξ ουρανου καταφερεσθαι οιονται, *Oſiris is the Nile, becauſe they think it is ſent down from heaven.* In one ſenſe Oſiris might be Bacchus, becauſe the original Bacchus was himſelf the ſun (ſee MYSTERIES, N° 12.); but that the Egyptian god could not be worſhipped as the inventor of wine is indeed undeniable, if, as Jablonſki labours to prove, the primitive religion of that country inculcated upon its votaries, that wine was the gift, not of a benevolent good, but of an evil genius, the enemy of the human race. In ſupport of this opinion our learned author quotes a paſſage from Plutarch, from which it appears, that, before the æra of Pſammetichus, the Egyptians neither drank wine themſelves nor offered it in libations to the gods, becauſe they believed that the firſt vine ſprung from the earth was impregnated by the blood of thoſe giants who periſhed in the war with the gods. It is indeed true, that the Greeks, who borrowed their religion as well as the firſt principles of ſcience from Egypt, attributed to their Bacchus many of the actions of Oſiris; but it is likewiſe true, that they gave him other attributes, which the Egyptian god could not poſſeſs conſiſtently with the known ſuperſtitions of that country. Salmaſius, however, attempts to prove, from the import of the name, that the *Oſiris* of Egypt muſt have been the Bacchus of Greece. Σαρ or Σιρι, he ſays, ſignifies a *ſon* in the Egyptian language; and hence he concludes, that the god was by that people called *Oſiris*, for the ſame reaſon that by the Greeks he was called Κουρος, and by the Romans *Liber*. But this ſeems all to be a miſtake. *Siris* makes a part of many Egyptian proper names, as *Bu-ſiris*, *Termo-ſiris*, *Tapoſiris*, &c. and is in all probability derived from the Hebrew word *Sar*, *Sur*, or *Sir*, which ſignifies a *prince*, *potentate*, or *grandee*. As the name of the god was in Egypt not *Oſiris*, but *Iſiris* or *Yſiris*, it was probably made up of *Sir* or *Siris*, and the Hebrew prefix *I* or *iſh*, denoting *ſtrength*; ſo that the whole word will ſignify the *ſtrong* or *mighty prince*. If ſo, we cannot doubt, as Diodorus Siculus, Euſebius, Sextus Empericus, &c. all affirm, that the Egyptians worſhipped the ſun by the name of *Oſiris*, but that by this name they meant the *power* or *governing mind* of the ſun, as the Greeks and Romans ſeem to have done by their *Phœbus* and *Apollo*.

† *Prepar. Evangel.*

But though the original Oſiris was undoubtedly the ſun, or the intelligence actuating the ſun, yet there is reaſon to believe that there was a *ſecondary Oſiris*, who at a very early period reigned in Egypt, and was deified after his death for the benefits he had rendered to his country (ſee POLYTHEISM). This is indeed ſo generally admitted, as to have occaſioned great controverſies among the learned reſpecting the time when he flouriſhed, and whether he was the civilizer of rude barbarians or the victorious ſovereign of a poliſhed nation. The illuſtrious Newton, it is well known, has adopted the latter opinion; and with much plauſibility endeavoured to prove, that *Oſiris* was the ſame with *Seſoſtris* or *Seſac*: but it muſt be confeſſed, that his concluſion is contrary to all the moſt authentic records of antiquity; and that it would be eaſy, by the ſame mode of arguing, to give a ſhow of identity to two perſons univerſally known to have flouriſhed in very diſtant ages (A). The annals of Egypt, as may be ſeen in the writings of Herodotus, Diodorus Siculus, Strabo, Plutarch, and others, who copied

Oſiris.

(A) This has been in fact done by Warburton; who employs Newton's mode of reaſoning with equal plauſibility, and perhaps ſuperior force, to prove the identity of King Arthur and William the Conqueror. See *Divine Legation of Moſes*, vol. iii. book iv. ſect. 5.

Oſiris
||
Oſnaburg.

pied from thoſe annals, expreſsly aſſerted the diſtinct perſonality of Oſiris and Seſoſtris, and placed them in æras vaſtly diſtant from each other. Oſiris, if any credit be due to thoſe hiſtorians, was the founder of the Egyptian monarchy; and, as was cuſtomary in thoſe days, having either received the name of the ſun, or communicated his own to that luminary, was after his death deified for the benefits which he had rendered to his country: and being at firſt worſhipped only as a demigod, was in proceſs of time advanced to full divinity, and confounded with his heavenly godfather. The Greeks, who, though original in nothing, were always prompted by their vanity to hold themſelves out as the firſt of the nations, claimed this Oſiris as their own, and pretended that he was the ſon of Jupiter and Niobe. He reigned, ſay they, over the Argives; but afterwards delivered his kingdom to his brother Algialeus, and took a voyage into Egypt, of which he made himſelf maſter, and married Io or Iſis. He eſtabliſhed good laws there; and they were both after their deaths worſhipped as gods. That this is a ridiculous fiction needs no proof; ſince every one knows, that good laws were eſtabliſhed in Egypt long before the Argives had any king, or indeed exiſted either as a tribe or nation.

OSMUNDA, MOONWORT; a genus of plants belonging to the cryptogamia claſs. See BOTANY *Index*.

OSNABURG, a biſhopric of Germany, ſituated in the centre of the circle of Weſtphalia, between the Weſer and the Ems, having Minden on the eaſt, Munſter on the weſt, Diepholt on the north-eaſt, and Ravenſburg on the ſouth-weſt. It is about 45 miles long and 25 broad, producing ſome rye, ſeveral ſorts of turf, coals, marble, and good paſturage. The inhabitants, who are a mixture of Proteſtants and Roman Catholics, breed a conſiderable number of cattle, eſpecially hogs, of which they make excellent bacon and hams; but a great part of the country conſiſts of heaths. By the treaty concluded here in 1648, the biſhopric was to be an alternative between the Roman Catholics and Lutherans; and the Lutheran biſhop was to be a younger prince of the houſe of Brunſwick Lunenburg, or in failure thereof, of Brunſwick Wolfenbuttle. In conſequence of this ſettlement, it has been twice held by a Britiſh prince ſince the acceſſion of the family of Hanover. The biſhop is able to raiſe 2500 men, his revenue being between 20,000 and 30,000l. The chief manufactures of the country are a coarſe kind of linen cloth and yarn, which are ſaid to bring into it annually about 1,000,000 of rixdollars. There are alſo ſome woollen manufactures in Oſnaburg and Bramſche. The land eſtates of the biſhopric are, the chapter, the knights, and the four towns. The diets are held at Oſnaburg, when called together by the biſhop. The count of Bar is hereditary ſeneſchal or ſteward, and preſident of the college of knights. The biſhop is a prince of the empire; and in the matricula is rated at ſix horſe and 36 foot, or 216 florins monthly, in lieu of them. To the chamber of the empire he contributes each term 81 rixdollars, 14 kruitzers and a half. The capital of this biſhopric is

OSNABURG, or *Oſnabruck*. It was formerly an imperial city, and one of the Hanſe towns; but it is now ſubject to the biſhop, though it ſtill enjoys many privileges, and a revenue of about 8000 or 9000 rixdollars. It has its name from a bridge over the river Haſe, or Oſe, which divides it into the Old and New Town, and ſtands 75 miles weſt of Hanover, and 30 north eaſt of Munſter, being ſurrounded with walls and ditches, but commanded by a mountain within cannon ſhot. It ſtands in a fine plain, and is adorned with ſeveral good buildings, and on the mountain there is an abbey. The magiſtracy of this city, which is rechoſen yearly on the 2d of January, is Lutheran; and the churches belong, ſome to the Lutherans, and ſome to the Papiſts. Both parties have the full and free exerciſe of their religion, whether the biſhop be Proteſtant or Papiſt. The biſhop's palace, called *Peterſburgh*, was built by Biſhop Erneſt Auguſtus, brother to King George I. It is well fortified and ſeparated from the town by a bridge. It is a hexagon with a court in the middle, and at each corner a turret. In the town-houſe are ſtill preſerved the pictures of the plenipotentiaries that aſſiſted at the conferences there for the famous treaty of Weſtphalia. In the treaſure of the cathedral are ſtill to be ſeen ſome ornaments given by Charlemagne, as alſo his crown, which is only of ſilver gilt, and his comb and batoon, ſix feet in length, both of ivory; together with other curioſities. Charlemagne is ſaid to have erected here a ſchool for Latin and Greek, which the Jeſuits in 1625 converted into an academy. They have the beſt bread and beer that is to be met with in all Weſtphalia, and have a pretty good trade in bacon and linen; as alſo by brewing a palatable thick ſort of beer called *buſe*. This city is noted for a treaty betwixt the emperor and the king of Sweden in 1648, wherein the affairs of the Proteſtants were regulated, which was a branch of the treaty of Weſtphalia. The town, with the reſt of the principality, is ſubject to its biſhop, who is a count of the empire, and by the treaty of Weſtphalia muſt be alternately a Proteſtant and Papiſt. The Popiſh biſhop is ſuffragan to the archbiſhop of Cologne; but the Proteſtant biſhop is indeed a temporal prince, and always of the houſe of Brunſwic, in conſideration of the principality of Halberſtat, which was taken from this houſe, and conferred upon the elector of Brandenburg. Frederic duke of York, ſecond ſon of his majeſty George III. is the preſent biſhop. The cathedral is in the hands of the Roman Catholics, with the church and monaſtery of the Dominicans in the old city, and the collegiate church of St John in the new. The Proteſtants are maſters of the great parochial church of St Mary in the old city; and both religions have a voice in the election of the magiſtrates. Of 25 canons belonging to the cathedral, 18 are Roman Catholics, and the revenues of 4 more are enjoyed by the Jeſuits for the ſupport of their college; ſo that there are but 3 Proteſtant canons, who have no voice in the election of the Roman Catholic biſhop, when it is his turn to ſucceed. The biſhop's palace is fortified like a caſtle: here it was that George I. was born on the 28th of May 1660, his father Erneſt-Auguſtus being then biſhop and prince of the place; and here alſo he died in the night of the 10th of June 1727, and, as ſome ſay, in the very room in which he was born. The biſhopric is ſituated in the centre of the circle; the north part of it is marſhy, and at the ſouth extremity it is mountainous. The inhabitants have conſiderable

Oſnaburg.

manufactures

Osnaburg Iſland, Oſorius.

manufactures of linen and a good breed of cattle; and of their hogs, for which they are remarkable, is made the beſt Weſtphalia bacon. Not far from this city are to be ſeen the ruins of an old church and caſtle called *Beelem*, which ſome ſay was built by King Witekind upon his converſion; and about two miles from it lies the monaſtery of Rulle, on the bank of a lake ſo deep, that report ſays it could never yet be fathomed. This was the firſt town in Weſtphalia which received the Lutheran doctrine.

Osnaburg Iſland, one of the iſlands in the South ſea, diſcovered by Captain Wallis in 1767. It is a high, round iſland, not above a league in circuit; in ſome parts covered with trees, in others a naked rock. S. Lat. 22. 48. W. Long. 14. 34.

OSORIUS, Jerome, a Portugueſe eccleſiaſtic, was born of a noble family at Liſbon, in 1500. He was educated at the univerſity of Salamanca, and afterwards ſtudied at Paris and Bologna. On his return to Portugal he gradually roſe to the biſhopric of Sylves, to which he was appointed by Catherine of Auſtria, regent of the kingdom in the minority of Sebaſtian. At the requeſt of Cardinal Henry of Portugal, he wrote his Hiſtory of King Emanuel, and the Expedition of Gama; which his great contemporary Camoens made at the ſame time the ſubject of his immortal Luſiad; a poem which has at length appeared with due luſtre in our language, being tranſlated with great ſpirit and elegance by Mr Mickle. It is remarkable that the hiſtory of Oſorius, and the epic poem of Camoens, were publiſhed in the ſame year, 1572: but the fate of theſe two great authors were very different; the poet was ſuffered to periſh in poverty, under the reign of that Henry who patroniſed the hiſtorian: yet allowing for the difference of their profeſſions, they poſſeſſed a ſimilarity of mind. There appear many traces of that high heroic ſpirit even in the prieſt Oſorius, which animated the ſoldier Camoens; particularly in the pleaſure with which he ſeems to deſcribe the martial manners of his countrymen under the reign of Emanuel. "In that age (ſays the hiſtorian in the cloſe of his manly work), poverty and ſadneſs were baniſhed from Portugal. Complaints were never heard; but every place, from the court to the cottage, reſounded with mirth and muſic. Illicit love was unknown; nor would the ladies liſten to the moſt honourable addreſſes of ſuch youths as had not ſignalized themſelves in war. No young man about court, however noble by birth, was permitted to wear the dreſs of manhood till he had paſſed over into Africa, and thence brought back with him ſome animal eſteemed for its rarity; and ſuch was the hardy education of the nobility in that age, that many of them travelled everywhere in queſt of adventures." This is a ſtriking picture of the manners of chivalry, to which Portugal owed much of its glory in that ſplendid period. There is one particular in the character of Oſorius, which, conſidering his age and country, deſerves the higheſt encomium; and that is his tolerating ſpirit. In the firſt book of his hiſtory, he ſpeaks of Emanuel's cruel perſecution of the Jews in the following generous and exalted language: "This (ſays he) was authoriſed neither by law nor by religion. Can men be compelled to believe what they reject with abhorrence? Do you take upon you to reſtrain the liberty of the will, or to fetter the underſtanding? Such an attempt muſt be unſucceſsful; and is not acceptable to Chriſt, who expects from man devotion of the heart, and not that formal worſhip which is the offſpring of pains and penalties. He wiſhes them to ſtudy his religion, and adopt it from conviction, not from terror: for who does not ſee that forced belief is mere hypocriſy?" Oſorius is ſaid to have uſed many arguments to diſſuade Sebaſtian from his unfortunate expedition into Africa, and to have felt ſo deeply the miſeries which befel the Portugueſe after that fatal event, that his grief was ſuppoſed to accelerate his death. He expired in 1580, happy, ſays De Thou (who celebrates him as a model of Chriſtian virtue), that he died juſt before the Spaniſh army entered Portugal, and thus eſcaped being a witneſs to the deſolation of his country.—His various works were publiſhed at Rome in 1592, by his nephew Oſorius, in four volumes folio, with a life of their author. Among theſe are two remarkable productions; the firſt, An Admonition to our Queen Elizabeth, exhorting her to return into the Church of Rome; the ſecond, An Eſſay on Glory, written with ſuch claſſical purity, as to give birth to a report, that it was not the compoſition of Oſorius, but the laſt work of Cicero on that ſubject.

Oſorius || Oſſian.

OSPREY. See Falco, Ornithology *Index*

OSSA, a lofty mountain of Theſſaly, near the Peneus, which runs between this mountain and Olympus; famous in the fabulous ſtory of the giants (Homer, Virgil, Horace, Seneca, Ovid). The bending and unbending of its pines, on the blowing of a ſtrong north wind, formed a claſhing ſound like thunder (Lucan). It was once the reſidence of the Centaurs, and was formerly joined to Mount Olympus; but Hercules, as ſome report, ſeparated them, and made between them the celebrated valley of Tempe. This ſeparation of the two mountains was more probably effected by an earthquake which happened about 1885 years before the Chriſtian era. Its greateſt celebrity ariſes from its being one of thoſe mountains which the giants in their wars againſt the gods heaped up one on the other to ſcale the heavens with more facility. A town of Macedonia.

OSSAT, Arnauld de, a learned French eccleſiaſtic, was born in the dioceſe of Auch in 1536, of mean parentage, and was taken notice of by a gentleman in the dioceſe, who made him ſtudy with his ward the Lord of Caſtlenan de Magnoac. He ſtudied the law at Dijon under Cujace, and applied himſelf to the bar at Paris. He was ſecretary at Rome to M. de Foix, archbiſhop of Thouloufe; to Cardinal Eſte; and afterwards to cardinal de Joyeuſe, by the French king's expreſs command. After riſing to the higheſt dignities both in church and ſtate, in 1599 he was created a cardinal by Pope Clement VIII. He died in 1604. An eminent French writer gives him the following character: "He was a man of prodigious penetration: applied himſelf ſo cloſely to affairs, and eſpecially was ſo judicious in forming his reſolutions, that it is almoſt impoſſible to find out one falſe ſtep in the many negociations in which he was concerned." His works, and eſpecially his letters, have been much eſteemed in the learned world.

OSSIAN, the ſon of Fingal, a celebrated Celtic poet, who flouriſhed about the end of the ſecond and beginning

Oſſian. beginning of the third century. Several incidents in his poems point out this as his æra: particularly the engagement of Fingal with Caracul, or Caracalla, the ſon of the emperor Severus, ſtyled by Oſſian, *The Son of the King of the World.* M. Tillemont fixes the elevation of Caracalla to a ſhare in the government to the year 198, and the aſſociation of his brother Geta to 208. About which time Gibbon fixes the Caledonian war, and ſpeaks thus upon the ſubject: "This Caledonian war, neither marked by deciſive events, nor attended with any important conſequences, would ill deſerve our attention; but it is ſuppoſed, not without a conſiderable degree of probability, that the invaſion of Severus is connected with the moſt ſhining period of the Britiſh hiſtory or fable. Fingal, whoſe fame, with that of his heroes and bards, has been revived in our language by a recent publication, is ſaid to have commanded the Caledonians in that memorable juncture, to have eluded the power of Severus, and to have obtained a ſignal victory on the banks of the Carun, in which the *ſon of the King of the World*, Caracul, fled from his arms along the fields of his pride*. Something of a doubtful miſt ſtill hangs over theſe Highland traditions; nor can it be entirely diſpelled by the moſt ingenious reſearches of modern criticiſm (A); but if we could with ſafety indulge the pleaſing ſuppoſition, that Fingal lived, and that Oſſian ſung, the ſtriking contraſt of the ſituation and manners of the contending nations might amuſe a philoſophic mind. The parallel would be little to the advantage of the more civilized people, if we compared the unrelenting revenge of Severus with the generous clemency of Fingal; the timid and brutal cruelty of Caracalla, with the bravery, the tenderneſs, the elegant genius of Oſſian; the mercenary chiefs who, from motives of fear or intereſt, ſerved under the Imperial ſtandard, with the free-born warriors who ſtarted to arms at the voice of the king of Morven: if, in a word, we contemplated the untutored Caledonians glowing with the warm virtues of nature, and the degenerate Romans polluted with the mean vices of wealth and ſlavery."

* *Oſſian's Poems*, vol. i. p. 175.

The date of this action, if the poems be true, is rather confounding; for the next expedition, which is produced to fix the time in which Oſſian flouriſhed, was conducted by Oſcar (againſt the uſurped Carauſius, the Caros of Oſſian), who did not aſſume the purple till ſo late as the year 287. This account indeed correſponds pretty well with the account given by Iriſh hiſtories, which place the death of Fingal in the year 283, and that of Oſcar (who died many years before his father Oſſian) in the year 296. Theſe hints are not thrown out becauſe we think they militate againſt the authenticity of the poems; for diſtant though theſe dates be, it is yet poſſible to reconcile them. Old age was and is very common in thoſe regions; and Oſſian himſelf, we are told, was an inſtance of great longevity. Indeed at ſuch a diſtance of time, it cannot be expected that we ſhould give either a very particular or a very exact account of Oſſian and his heroes. Were there no doubts remaining of the truth of the facts, it is ſtill natural to ſuppoſe that they muſt have ſuffered obſcurity through the ruſt of time, and above all through the neglect of the poems, which till lately were unknown. Oſſian.

The firſt expedition on which Oſſian's father ſent him was, to raiſe a ſtone on the banks of Crona, to perpetuate the memory of a victory which the king of Morven had obtained at that place. The Highlanders talk of this as being emblematical of that immortality which heroes were to receive from his future compoſitions. In this expedition he was accompanied by Toſcar, father of the beautiful Malvina, the amiable companion of his grief, after the death of her beloved Oſcar, his ſon. It appears from his poems, that in one of his early expeditions to Ireland, he had fallen in love with and married Evirallin, daughter to Branno, petty king of Lego. "I went in ſuit of the maid of Lego's ſable ſurge; twelve of my people were there, the ſons of ſtreamy Morven. We came to Branno, friend of ſtrangers; Branno of the ſounding mail.—'From whence (he ſaid) are the arms of ſteel? Not eaſy to win is the maid that has denied the blue-eyed ſons of Erin. But bleſt be thou, O ſon of Fingal! happy is the maid that waits thee. Though twelve daughters were mine, thine were the choice, thou ſon of fame.'—Then he opened the hall of the maid; the dark-haired Evirallin *." This Evirallin was the mother of his ſon Oſcar, whoſe exploits he celebrates in many of his poems, and whoſe death he laments in the firſt book of Temora. Evirallin died ſome time before Oſcar (FINGAL, B. iv.), who ſeems to have been her only child; and Oſſian did not marry afterwards; ſo that his poſterity ended in the death of Oſcar; who ſeems to have died as he was about to be married to Malvina, the daughter of Toſcar. Several of her lamentations for her lover are recorded by Oſſian, which paint her grief in the ſtrongeſt and moſt beautiful colours. "It is the voice of my love! few are his viſits to my dreams.—But thou dwelleſt in the ſoul of Malvina, ſon of mighty Oſſian. My ſighs ariſe with the beams of the eaſt; my tears deſcend with the drops of night. I was a lovely tree in thy preſence, Oſcar, with all my branches round me: but thy death came like a blaſt from the deſert, and laid my green head low; the ſpring returned with its ſhowers, but no green leaf of mine aroſe." *Poem of* CROMA.

* *Fingal*, B. iv.

The principal reſidence of Oſſian was in the vale in Cona, now Glenco, in Argyleſhire. See FINGAL.

His poems relate many of his expeditions to Ireland,

(A) "That the *Caracul* of Oſſian is the *Caracalla* of the Roman hiſtory, is perhaps the only point of Britiſh antiquity in which Mr Macpherſon and Mr Whitaker are of the ſame opinion; and yet the opinion is not without difficulty. In the Caledonian war, the ſon of Severus was known only by the appellation of *Antoninus*; and it may ſeem ſtrange that the Highland bard ſhould deſcribe him by a nick name, invented four years afterwards, ſcarcely uſed by the Romans till after the death of that emperor, and ſeldom employed by the moſt ancient hiſtorians. See Dion. lib. lxxvii. p. 1317. Hiſt. Auguſt. p. 89. Aurel. Victor. Euſeb. in Chron. ad ann. 214.

Ossian.

land, Scandinavia, Clyde, and Tweed or Teutha. His exploits on these occasions, after making a large allowance for poetical exaggeration, show him to have been no less a warrior than a poet: (See OSSIAN'S WORKS, in the poems *Calthon and Colmal*, *Lathmon*, *Berrathon*, &c.) By these expeditions, which were always undertaken for the relief of the distressed, the mind of Ossian seems to have been cultivated and enlarged beyond what is usually to be met with in so rude a period of society as that in which he lived. His poems breathe, throughout, such a spirit of generosity and tenderness, especially towards the fair sex, as is seldom or never to be met with in the compositions of other poets who lived in a more advanced state of civilization. He lived to an extreme old age; having survived all his family and friends, many of whom perished by a fatal accident, recorded in one of his poems called the *fall of Tura* *. Malvina alone, the love of his son Oscar, remained with him till within a few years of his death, and paid him every attention that could be expected from the tender relation in which she stood to him. To her he addresses many of his poems, which seem to have been composed for the most part in his old age. Her death is pathetically lamented by him in the poem of *Berrathon:* towards the close of which, he gives the presages of his own departure; an event which he often wishes for, under the blindness and other calamities of his declining years. "Roll on, ye dark brown years, for ye bring no joy on your course. Let the tomb open to Ossian, for his strength has failed. The sons of the song are gone to rest: my voice remains, like a blast, that roars lonely, on the sea surrounded rock, after the winds are laid. The dark moss whistles there, and the distant mariner sees the waving trees †."—"But Ossian is a tree that is withered. Its branches are blasted and bare; no green leaf covers its boughs. From its trunk no young shoot is seen to spring. The breeze whistles in its gray moss: the blast shakes its head of ages.—The storm will soon overturn it, and strew all its dry branches with thee, O Dermid! and with all the rest of the mighty dead, in the green winding vale of Cona ‡."

* See *Gaelic Antiquities.*

† Poem of *Berrathon.*

‡ *Gaelic Antiquities*, poem *of Dermid.*

It is not certain at what age Ossian died; but from his having been long blind with years, and from the many contrasts between his present and past situations, in poems composed, as it would appear, at a considerable distance of time from each other, it is most likely he lived to an extreme old age. The current tradition is, that he died in the house of a Culdee, called the *Son of Alpin*, with whom he is said to have held several conferences about the doctrines of Christianity. One of these dialogues is still preserved, and bears the genuine marks of a very remote antiquity; (*Dissertation* prefixed to *Ossian's Works*). Several of Ossian's poems are addressed to this son of Alpin, who was probably one of those Christians whom the persecution under Diocletian had driven beyond the pale of the Roman empire.

The poems of Ossian, though always held in the highest esteem by those who knew them, were allowed to remain in the obscurity of their original Gaelic, till Mr Macpherson, above 40 years ago, translated a collection of them into English, which immediately attracted the attention of every person who had a true taste for poetry. Dr Blair, in particular, introduced these poems into the world with those critical remarks which do no less honour to himself than to the poet. According to that eminent critic, the two great characteristics of Ossian's poetry are tenderness and sublimity. Ossian is, perhaps, the only poet who never relaxes, or lets himself down into the light and amusing strain. He moves perpetually in the high region of the grand and pathetic. The events which he records are all serious and grave; the scenery wild and romantic. We find not in him an imagination that sports itself, and dresses out gay trifles to please the fancy. His poetry, more perhaps than that of any other, deserves to be styled the *poetry of the heart*. It is a heart penetrated with noble sentiments, with sublime and tender passions; a heart that glows and kindles the fancy; a heart that is full, and pours itself forth. Of all the great poets, Homer is the one whose manner and whose times come the nearest to Ossian's. Homer's ideas were more enlarged, and his characters more diversified. Ossian's ideas fewer, but of the kind fittest for poetry; the bravery and generosity of heroes, the tenderness of lovers, and the attachment of friends. Homer is diffuse; Ossian abrupt and concise. His images are a blaze of lightning, which flash and vanish. Homer has more of impetuosity and fire; Ossian of a solemn and awful grandeur. In the pathetic, Homer has a great power; but Ossian exerts that power much oftener, and has the character of tenderness more deeply imprinted on his works. No poet knew better how to seize and melt the heart. With regard to dignity of sentiment, we must be surprised to find that the pre-eminence must clearly be given to the Celtic bard. This appears nowhere more remarkable than in the sentiments which he expresses towards his enemies. "Uthal fell beneath my sword, and the sons of Berrathon fled.—It was then I saw him in his beauty, and the tear hung in my eye. Thou art fallen, young tree, I said, with all thy beauty round thee. Thou art fallen on thy plains, and the field is bare. The winds come from the desert, and there is no sound in thy leaves! Lovely art thou in death, son of car-borne Larthmore *." His supposition, that all the little feuds and differences of this life should be forgotten in a future state, and that those who had once been foes would "stretch their arms to the same shell in Loda," gives us the highest idea of the man as well as of the poet. "Daughter of beauty, thou art low! A strange shore receives thy corse. But the ghosts of Morven will open their halls when they see thee coming. Heroes around the feast of dim shells, in the midst of clouds shall admire thee; and virgins shall touch the harp of mist †."——"The feuds of other years by the mighty dead are forgotten. The warriors now meet in peace, and ride together on the tempest's wing. No clang of the shield, no noise of the spear, is heard in their peaceful dwellings. Side by side they sit, who once mixed in battle their steel. There, Lochlin and Morven meet at the mutual feast, and listen together to the song of their bards ‡."

Ossian.

* *Ossian's Works*, poems of *Berrathon.*

† *Gaelic Antiquities*, poem of *Trathal.*

‡ *Ib.* poem of *Dargo.*

But the sublimity of moral sentiments, if they wanted the softening of the tender, would be in hazard of giving a stiff air to poetry. It is not enough that we admire. Admiration is a cold feeling in comparison of that deep interest the heart takes in tender and pathetic scenes. With scenes of this kind Ossian abounds; and

Ossian. and his high merit in these is incontestible. He may be blamed for drawing tears too often from our eyes; but that he has the power of commanding them no man who has the least sensibility can question. His poems awake the tenderest sympathies, and inspire the most generous emotions. No reader can rise from him without being warmed by the sentiments of humanity, virtue, and honour.

But the excellency of these poems occasioned in many persons a doubt of their authenticity. Their genuineness, however, has been very ably defended by Dr Blair and Lord Kames, and warmly supported by the author of the *Gaelic Antiquities*, who has given the public some more remains of Ossian's poetry.

As the nature of our work will not allow us to treat this matter at full length, we shall only give a brief view of the arguments offered in support of the authenticity of these poems, referring our readers to the authors just now mentioned and others, for fuller satisfaction.

"In every period of society (says Dr Blair), human manners are a curious spectacle; and the most natural pictures of ancient manners are exhibited in the ancient poems of nations. These make us acquainted with the notions and feelings of our fellow-creatures in the most artless ages; discovering what objects they admired, and what pleasures they pursued, before those refinements of society had taken place, which enlarge indeed, and diversify the transactions, but disguise the manners of mankind.

"Besides this, ancient poems have another merit with persons of taste. They promise some of the highest beauties of poetical writing. That state, in which human nature shoots wild and free, though unfit for other improvements, certainly encourages the high exertions of fancy and passion.

"In the infancy of societies the passions of men have nothing to restrain them; their imagination has nothing to check it. And as their feelings are strong, so their language of itself assumes a poetical turn. Men never have used so many figures of style, as in those rude ages, when, besides a warm imagination to suggest lively images, the want of proper and precise terms for the ideas they would express, obliged them to have recourse to circumlocution, metaphor, comparison, and all those substituted forms of expression, which give a poetical air to language. An American chief, at this day, harangues at the head of his tribe in a more bold metaphorical style than a modern European would adventure to use in an epic poem.

"Poetry has been said to be more ancient than prose, which, in a qualified sense, is true. Music or song has been found coeval with society among the most barbarous nations; and the only subjects which could prompt men, in their first rude state, to utter their thoughts in compositions of any length, were such as naturally assumed the tone of poetry; praises of their gods, or of their ancestors; commemorations of their own warlike exploits; or lamentations over their misfortunes. And before writing was invented, no other compositions, except songs or poems, could take such hold of the imagination and memory, as to be preserved by oral tradition, and handed down from one race to another.

"Hence we may expect to find poems among the antiquities of all nations. It is probable, too, that an extensive search would discover a certain degree of resemblance among all the most ancient poetical productions, from whatever country they have proceeded. In a similar state of manners, similar objects and passions operating upon the imaginations of men, will stamp their productions with the same general character. Some diversity will, no doubt, be occasioned by climate and genius. But mankind never bear such resembling features as they do in the beginnings of society. What we call the *oriental vein* of poetry, because the earliest poetical productions have come to us from the east, is probably no more *oriental* than *occidental;* it is characteristical of an age rather than a country; and belongs, in some measure, to all nations at a certain period. Of this the works of Ossian seem to furnish a remarkable proof.

"He appears clearly to have lived in a period which enjoyed all the benefit I have just now mentioned of traditionary poetry. The exploits of Trathal, Trenmor, and the other ancestors of Fingal, are spoken of as familiarly known. Ancient bards are frequently alluded to. In one remarkable passage, Ossian describes himself as living in a sort of classical age, enlightened by the memorials of former times, conveyed in the songs of bards, and points at a period of ignorance which lay beyond the reach of tradition. Ossian himself appears to have been endowed by nature with exquisite sensibility; prone to that tender melancholy which is so often an attendant on great genius; and susceptible equally of strong and of soft emotions. He was not only a professed bard, but a warrior also, and the son of the most renowned hero and prince of his age. This formed a conjunction of circumstances, uncommonly favourable towards exalting the imagination of a poet.

"The manners of Ossian's age were favourable to a poetical genius. Covetousness and effeminacy were unknown. The cares of men were few. The great object pursued by heroic spirit, was, 'to receive their fame,' that is, to become worthy of being celebrated in the songs of bards; and 'to have their names on the four gray stones.' To die lamented by a bard was deemed so great a misfortune as even to disturb their ghosts in another state. In such times as these, in a country where poetry had been so long cultivated, and so highly honoured, is it any wonder that, among the race and succession of bards, one Homer should arise: a man who, endowed with a natural, happy genius, favoured by peculiar advantages of birth and condition: and meeting, in the course of his life, with a variety of incidents proper to fire his imagination, and to touch his heart, should attain a degree of eminence in poetry, worthy to draw the admiration of more refined ages?"

Besides, his compositions, when viewed in themselves, have, we are told, all the internal marks of antiquity so strongly impressed upon them, that no reader of taste and judgement can deny their claim to it. They exhibit so lively a picture of customs which have disappeared for ages, as could be drawn only from nature and real life. The features are so distinct, that few portraits of the life continually passing before us are found to be drawn with so much likeness. The manners uniformly relate to a very early stage of society; and no hint, no allusion to the arts, customs, or manners, of a more ad-

Offian. vanced period, appears throughout the poems. To that diſtinction of ranks, which is always found in adult ſocieties, the poet appears to have been a perfect ſtranger. The firſt heroes prepare their own repaſts, and indiſcriminately condeſcend to the moſt menial ſervices. Their quarrels ariſe from cauſes generally ſlight, but in ſuch a period extremely natural. A rivalſhip in love, an omiſſion at a feaſt, or an affront at a tournament, are often the foundation of a quarrel among ſingle heroes. And the wars in which whole tribes are engaged, are carried on with a view, not to enlarge their territory, but to revenge perhaps the killing of a few deer on their mountains, or the taking forcibly away one of their women. Their occupation was war and hunting; and their chief ambition was to have their fame in the ſongs of the bards.

The notions of a future ſtate, exhibited in theſe poems, are likewiſe ſtrongly marked with the character of antiquity. A creed ſo uncommon, that the imagination of a modern could not be ſuppoſed to graſp ſo ſtrong an idea of it from mere fancy, is uniformly ſupported throughout. This creed is extremely ſimple, but admirably ſuited to the times.

The language, too, and the ſtructure, of theſe poems, bear the moſt ſtriking characters of antiquity. The language is bold, animated, and metaphorical, ſuch as it is found to be in all infant ſtates; where the words, as well as the ideas and objects, muſt be few; and where the language, like the imagination, is ſtrong and undiſciplined. No abſtract, and few general, terms appear in the poems of Oſſian. If objects are but introduced in a ſimile, they are always particularized. It is "the young pine of Iniſhmma:" it is "the bow of the ſhowery Lena." This character, ſo conſpicuous in the poems of Oſſian, is a ſtriking feature in the language of all early ſtates; whoſe objects and ideas are few and particular, and whoſe ordinary converſation is of courſe highly figurative and poetical. A picture, therefore, marked with ſuch ſtriking features, could not be drawn without an original.

The whole texture of the compoſition is alſo, like the language, bold, nervous, and conciſe; yet always plain and artleſs; without any thing of that modern refinement, or elaborate decoration, which attend the advancement of literature. No foreign ornaments are hunted after. The wild and grand nature which lay within the poet's view, is the only ſource from which he draws his ornaments. Beyond this circle, his imagination, though quick and rapid, ſeldom made any excurſion. We perceive his language always to be that of a perſon who ſaw and felt what he deſcribes; who bore a part in the expeditions which he celebrates, and who fought in the battles which he ſings. Such is the nature of the internal proof adduced in the preſent caſe, which unqueſtionably has weight, and that not inconſiderable; but unſupported by external proof, or contrary to facts, however forcible it may be in itſelf, when conſidered in this connection, and found wanting, it will neither ſilence the querulous ſceptic, nor, in all probability, will it ever convince thoſe who have truth for their object, and who wiſh to inveſtigate, and, if poſſible, diſcover it on ſurer grounds. Internal proof is of the greateſt ſervice in a variety of excellent cauſes; but it comes in rather as a ſuccedaneum than as direct evidence; and without ſomething more to the purpoſe, it may excite admiration, but will ſeldom enforce belief. Offian.

Of the cuſtoms and manners of ancient times we know but little, and of that little we have often but a confuſed notion. There is therefore room for genius and ability to exert itſelf in deceiving; and in proportion to the darkneſs in which the ſubject is involved, the deception will generally be the more complete, and the ſecret windings of error leſs eaſy to be developed.

Deſtitute of external proof, authenticity may appear to be probable, but cannot be certain; and in ſuch circumſtances, on many occaſions, and eſpecially with reſpect to ancient writings, we may, without any offence to truth or to ſound reaſoning, give them up as ſpurious. In the preſent inſtance, therefore, it is juſt and proper to add to what has been already ſaid, the more external and poſitive proofs of the authenticity of the poems in queſtion, by the ſtrength or weakneſs of which the ſubject muſt be finally determined. It is obſerved, therefore, That there have been in the Highlands of Scotland, for ſome ages back, a vaſt many poems aſcribed to Oſſian: That theſe poems have been held in the higheſt veneration, repeated by almoſt all perſons, and on all occaſions. Theſe are facts ſo well known, that nobody as yet has been hardy enough to deny them. There is not an old man in the Highlands, who will not declare, that he heard ſuch poems repeated by his father and grandfather as pieces of the moſt remote antiquity. There is not a diſtrict in the Highlands where there are not many places, waters, iſles, caves, and mountains, which from time immemorial are called after the names of Oſſian's heroes.—There is not a lover of ancient tale or poetry, however illiterate, who is not well acquainted with almoſt every ſingle name, character, and incident, mentioned in thoſe tranſlations of Oſſian's poems, which he may have never heard of.—Bards, who are themſelves ſeveral centuries old, quote thoſe poems, imitate them, and refer to them.—The ordinary converſation and compariſons of the Highlanders frequently allude to the cuſtoms and characters mentioned in them;—and many of their moſt common proverbs, eſtabliſhed by the moſt ancient uſe, are lines borrowed from the poems of Oſſian *.—The moſt ancient of the clans boaſt of deriving their pedigree, each from ſome one of Oſſian's heroes;—and many of the ſigns armorial aſſumed by them, are drawn from the feats aſcribed to their predeceſſors in thoſe poems †. Manuſcripts are mentioned, in which ſome of thoſe have been preſerved for ſeveral centuries ‡; and a liſt of living names, in different parts of the Highlands, is appealed to, as perſons who ſtill repeat a part of theſe poems ||. Whilſt Mr Macpherſon was engaged in the tranſlation, many reſpectable perſons, gentlemen and clergymen, avowed to the public, that theſe were Oſſian's poems, with which they had long been acquainted, and that the tranſlation was literal §. This appears alſo from the large ſpecimens of the originals publiſhed and compared by proper judges. The originals lay a conſiderable time in the hands of the bookſeller, for the inſpection of the curious; they have been afterwards ſhown frequently to many of the beſt judges, and offered for publication if the editor had been favoured with ſubſcriptions. The editor of the pamphlet, in which their authenticity is atteſted by many reſpectable names of undoubted veracity, obſerves, by way of concluſion, "that more teſtimonies might have been produced by a more enlarged correſpondence

* See examples under each of theſe heads in the *Gaelic Antiquities*, p. 93, 94, 95.

† *Ibid.* p. 164. in *note.*

‡ *Kames's Sketches*, book i.

|| *Gaelic Antiquities*, p. 95, 128.

§ See liſt of names, *Appendix* to Dr Blair's Diſſertation, *Offian's Works*, 2d edit.

Oſſian. correſpondence with the Highland counties: But I apprehend, if any apology is neceſſary, it is for producing ſo many names in a queſtion where the conſenting ſilence of a whole country was, to every unprejudiced perſon, the ſtrongeſt proof that ſpurious compoſitions, in the name of that country, had not been obtruded upon the world." It is likewiſe argued in ſupport of the authenticity of theſe poems, that candid ſceptics, on hearing ſome of them repeated by illiterate perſons, who had never ſeen the tranſlation, cauſed them to give the meaning of what they repeated, by an extempore tranſlation into Engliſh, and by this means had all their doubts of the authenticity of Oſſian removed *. They urge further, that ſuch paſſages of Oſſian's works as are ſtill repeated by ſome old men, are among the moſt beautiful parts of Oſſian's poems; ſuch as the battle of Lora, the moſt affecting parts of Carthon, Berrathon, the death of Oſcar, and Darthula, or the children of Uſnoth, &c.; which gives a credibility to his being equal to the other parts of the collection, none of it being ſuperior to theſe in merit.

* Pref. to Dr Percy's *Reliques of Old Engliſh Poetry*, 1ſt edit.

To theſe and the like arguments advanced in ſupport of the authenticity of the poems aſcribed to Oſſian, many objections have been urged. Thoſe of Johnſon and his friend Shaw are univerſally known. A later writer objects to them in the following manner: No fragments of Britiſh poetry in Scotland are to be found. Many ſpecimens of Iriſh poetry in Scotland have been publiſhed; but none older than a century or two. Tranſlations have alſo appeared; but, in general, of no fidelity. Thoſe of the poems aſcribed to Oſſian, in particular, have deſervedly drawn much of the public attention; but they will only miſlead any reader who wiſhes to form an idea of Celtic poetry. He that believes Oſſian to have flouriſhed about the year 300, and his writings preſerved by oral tradition for 1460 years, large is his faith, and he might move mountains! Gentlemen of the Highlands of Scotland, with whom our author converſed on the ſubject, aſſured him, that they looked upon nine-tenths of Mr Macpherſon's work as his own; and upon the other tenth, as ſo much changed by him, that all might be regarded as his own compoſition. There are poſitive evidences, he ſays, which convince him that not one of the poems given to Oſſian, and probably not one paſſage of them, is older than the 15th century. The very firſt author we know who mentions Fingal, is Barbour, a Scotch poet, who wrote in 1375. Fingal was an Iriſh hero: and one Good, a ſchoolmaſter of Limerick, ſent ſome account of Ireland to Camden, in 1566, in which mention is made of ſome ſtrange fables, that the people amuſe themſelves with, about the "giants *Fin Mac Huyle*, and *Otker Mac Oſhin*," of which we ſhall ſpeak more largely preſently. In the mean time, to theſe and ſuch like objections, it has been anſwered, That poetry has been cultivated with moſt ſucceſs in the earlieſt ages of ſociety; that in Greece, Orpheus, Linus, Heſiod, and Homer, wrote their admirable poems ſome ages before any thing had been written in proſe in the Greek language; that the book of Job, written in a very early period of ſociety, is highly poetical; that among the tribes of Lapland and America, there have been found, in the earlieſt ſtate, ſome excellent pieces of poetry. That the Caledonians, in particular, had ſome peculiar inſtitutions, which tended to improve their poetry: their druids were among the moſt learned philoſophers which perhaps any age or country produced; their bards or poets were the diſciples of thoſe druids, and were always a ſtanding order, to which none but the moſt promiſing geniuſes were admitted. This ſtanding college of poets was furniſhed, not only with the fruits of their own long ſtudy and obſervation, but alſo with as much as merited to be preſerved of the compoſitions of their predeceſſors in office, ſince the "light of the ſong" firſt dawned. They had the advantage of one another's converſation; which would excite their emulation, and make them aſpire to eminence: They were always preſent, and generally engaged, in every grand operation that was tranſacted; which could not fail to inſpire their muſe with the trueſt poetic fire. Oſſian.

Pinkerton.

The caſe of Oſſian was particularly favourable. He lived in an age when manners came to a conſiderable degree of refinement under the care of the bards and druids. Poetry in his day was conſiderably advanced; and the language, though ſtrong and figurative, had undergone ſome degree of cultivation, and learned to flow in regular numbers, adapted to the harp, the favourite inſtrument of the times. As a prince and a warrior, his mind muſt have been expanded and much enlarged by his excurſions to other countries. At home he had Ullin, Alpin, Carril, and Ryno, to converſe with; all of them poets of eminence, who would have advanced him greatly by their example and converſation. All theſe advantages, meeting with a native fire and enthuſiaſm of genius, as in the caſe of Oſſian, may well be ſuppoſed to have produced poems that might challenge the veneration of ages.

But it is not to their merit alone that we owe the preſervation of theſe poems ſo long by oral tradition. Other circumſtances concurred; of which, the inſtitution of the BARDS deſerves particular notice. In a country, the only one perhaps in the world in which there was always, from the earlieſt period almoſt to the preſent age, a ſtanding order of poets, we cannot reaſonably be ſurpriſed, either at finding excellent poems compoſed, or, after being compoſed, carefully preſerved from oblivion. A great part of the buſineſs of this order was to watch over the poems of Oſſian. In every family of diſtinction there was always one principal bard, and a number of diſciples, who vied with each other in having theſe poems in the greateſt perfection. Should the inſtitution of the bards laſt for ever, the poems of Oſſian could never periſh.

Nor were they the only bards of great families who took an intereſt in theſe poems; the vaſſal, equally fond of the ſong with his ſuperior, entertained himſelf in the ſame manner. This, with a life free from care, a ſpirit unbroken by labour, and a ſpace of time unoccupied by any other employment or diverſion, contributed to render the Highlanders a nation of ſingers and poets. From ſuch a people, the ſuperior merit of Oſſian's poems would naturally procure every encouragement, which they always retained as long as the manners of the people remained unchanged.

Many other reaſons conſpired to preſerve the poems of Oſſian. The martial and intrepid ſpirit which they breathed, made it the intereſt of the chieftains to preſerve them: the ſtrain of juſtice, generoſity, and humanity, which runs through them, recommended them to the ſuperintendants of religion, who well knew how

Oſſian. much the morals of a people muſt be tinctured with thoſe ſongs which they are continually repeating, and which have all the advantages of poetry and of muſic. In ſuperſtitious ages, the people revered theſe poems, from their being addreſſed generally to ſome "ſon of the rock," ſuppoſed to be the tutelar ſaint of the place, or the great Iriſh apoſtle St Patrick. Beſides, every hill and dale which the natives of the Highlands walked over, was claſſic ground. Every mountain, rocks, and river, was immortalized in the ſong. This ſong would naturally be ſuggeſted by the ſight of theſe objects, and every body would hum it as he walked along. All the proverbs and cuſtoms to which theſe poems gave riſe, would operate in the ſame manner. The ſon would aſk what they meant, and the father would repeat the ſong from which they were taken. The diſtinct and unſubdued ſtate in which the Highlanders remained for ſo long a courſe of ages, every clan, one generation after another, inhabiting the ſame valley, till towards the preſent century, contributed much to preſerve their traditions and their poems; and the conſtant and general cuſtom of repeating theſe in the winter nights, kept them always alive in their remembrance.

To theſe cauſes and cuſtoms the preſervation of Oſſian's poems, for ſo many ages, has been aſcribed. But theſe cauſes and cuſtoms have ceaſed to exiſt; and the poems of Oſſian, of courſe, have ceaſed to be repeated.—Within a century back, the Highlands of Scotland have undergone a greater revolution than it had done for ten before that period. With a quicker pace the feudal ſyſtem vaniſhed; property fluctuated; new laws and new cuſtoms ſtept in, and ſupplanted the old: and all this, with ſuch ſudden and ſuch violent convulſions, as may well account for the ſhaking of a fabric which had ſtood ſo many ages, that it ſeemed to have bidden defiance to all the injuries of time. Even ſince Mr Macpherſon gathered the poems in his collection, the amuſements, employments, and taſte of the Highlanders are much altered. A greater attention to commerce, agriculture, and paſturage, has quite engroſſed that partial attention which was paid, even then, to the ſong of the bard. In twenty years hence, if manners continue to change ſo faſt as they do at preſent, the fainteſt traces will ſcarce be found of thoſe tales and poems. "Oſſian himſelf is the laſt of his race; and he too ſhall ſoon be no more, for his gray branches are already ſtrewed on all the winds."

Among the cauſes which make theſe poems vaniſh ſo rapidly, poverty and the iron rod ſhould come in for a large ſhare. From the baneful ſhade of thoſe *murderers of the muſe*, the light of the ſong muſt faſt retire. No other reaſon needs be given why the preſent Highlanders neglect ſo much the ſongs of their fathers.—Once, the humble, but happy vaſſal, ſat at his eaſe, at the foot of his grey rock or green tree. Few were his wants, and fewer ſtill his cares; for he beheld his herds ſporting around him, on his then unmeaſured mountain. He hummed the careleſs ſong, and tuned his harp with joy, while his ſoul in ſilence bleſſed his children.—Now, we were going to draw the compariſon:

———ſed Cynthius aurem
Vellit et admonuit.

It is more agreable to remark, as another cauſe for the neglect of ancient poems and traditions, the growth of induſtry, which fills up all the blanks of time to more advantage, and eſpecially the increaſe of more uſeful knowledge.—But above all, the extinction of the order of the bards haſtened the cataſtrophe of Oſſian's poems. By a happy coincidence Macpherſon overtook the laſt that remained of this order, (Macvaurich, bard to Clanronald), and got his treaſure. This fact (with the *red book* furniſhed by Mr Macdonald of Croidart, and ſome other MSS.) accounts for Mr Macpherſon's having found theſe poems in greater number and perfection than they could ever ſince be met with. The fragments, however, which have ſince been gathered, give a credibility to every thing that has been ſaid of the original grandeur of the building. Oſſian.

Although this diſquiſition has already exended to a length which readers not partial to Scottiſh antiquities will perhaps think too great, we cannot diſmiſs it without obſerving, that Fingal and Oſſian have been claimed by the Iriſh as well as by the Caledonians. On this double claim, as well as on the controverſy concerning the authenticity of the poems, there is ſo much candour and good ſenſe in the following remarks of T. F. Hill, publiſhed in the 53d volume of the Gentleman's Magazine, that we cannot deny ourſelves the pleaſure of making them conclude the article.

Mr Hill travelled through the Highlands of Scotland during the ſummer months of 1780. He ſeems to have been very ardent in his inquiries concerning Oſſian, and to have conducted thoſe inquiries with great judgement. The conſequence was, that he received different accounts in different places, and picked up various ſongs relating to Fingal and his heroes.

"From this collection, it is evident (ſays he) that there are many traditional ſongs preſerved in the Highlands relating to Fingal and his heroes, as well as to ſeveral other ſubjects. It is alſo evident, that theſe ſongs contain portions of the very poems publiſhed by Mr Macpherſon and Mr Smith, under the name of *Oſſian*. We may therefore juſtly conclude, that theſe poems are not wholly the forgery of their editors, but compiled at leaſt from original ſongs. I by no means think it worth my while to notice the various conceſſions in favour of this concluſion, which the minor antagoniſts of Oſſian have of late been forced to make. I myſelf have given proofs of it, which need I hope no external confirmation. To theſe proofs might be added, that I met with many traditional preſervers of theſe ſongs, in every different part of the Highlands: in ſome of whom, eſpecially in Argyleſhire, Lochaber, and on the reſt of the weſtern coaſt, were ſaid to poſſeſs various poems attributed to Oſſian, although I had neither leiſure nor opportunity to collect copies from them.—But enough has already been ſaid on this ſubject, if my teſtimony deſerves regard.

"Theſe principles being eſtabliſhed, it remains to be conſidered how far the poems publiſhed by Macpherſon and Smith deſerve to be conſidered as the works of Oſſian.

"The ſongs attributed to that bard, which contain paſſages of the Oſſian of Macpherſon and Smith, are by no means uniformly conſiſtent with the poems in which the

Offian. the parallel paſſages are found, but frequently relate to different events, and even contain different circumſtances. From hence it ſeems moſt probable, that Mr Macpherſon and Mr Smith compiled their publications from thoſe parts of the Highland ſongs which they moſt approved, combining them into ſuch forms as according to their ideas were moſt excellent, and preſerving the old names and the leading events. In this proceſs they were ſupported and encouraged by the variety of ſongs preſerved in the Highlands upon the ſame ſubject, and by the various modes in which the ſame event is related. Mr Macpherſon may indeed have MSS. of all the poems he has publiſhed; which MSS. may either have been compiled by himſelf, or by ſome former collector; or they may poſſibly contain entire poems really ancient. But Mr Smith has honeſtly acknowledged, that he himſelf compiled his Offian in the manner above deſcribed. 'After the materials were collected (ſays he), the next labour was to compare the different editions; to ſtrike off ſeveral parts that were manifeſtly ſpurious; to bring together ſome epiſodes that appeared to have a relation to one another, though repeated ſeparately; and reſtore to their proper places ſome incidents that ſeemed to have run from one poem to another:—and hence it was unavoidably neceſſary to throw in ſometimes a few lines or ſentences to join ſome of the epiſodes together.—I am ſenſible that the form of theſe poems is conſiderably altered from what is found in any one of the editions from which they are compiled. They have aſſumed ſomewhat more of the appearance of regularity and art—than that bold and irregular manner in which they are originally delivered.'

"Mr Smith alſo ſpeaks of the Offian of Mr Macpherſon in a ſomewhat ſimilar manner: 'That we have not the whole of the poems of Offian, or even of the collection tranſlated by Mr Macpherſon, we allow: yet ſtill we have many of them, and of almoſt all a part. The building is not entire, but we have ſtill the grand ruins of it.'

"What portion, therefore, of the Offian of Macpherſon and Smith is original, no man can determine except themſelves. Smith indeed ſays, that he has mentioned all his *material* alterations, tranſpoſitions, and additions, in his notes; and that, *for the moſt part*, he was guided in them by the Sgeulachds, or traditionary tales accompanying the ſongs; but there are few ſuch notes in his book, and perhaps as few *ſuch* Sgeulachds in the mouths of the Highlanders. In Macpherſon and Smith alſo we ſee theſe poems diveſted of their idiomatic peculiarities and fabulous ornaments; which renders it impoſſible to diſcover what manners and opinions are really ancient, and what are of modern invention. Yet it is remarkable, that in ſpite of all the objections to their authenticity, neceſſarily produced by ſuch a treatment of them, they ſtill poſſeſs an internal evidence of originality which has enabled them hitherto to withſtand all the torrent of oppoſition.

"The Offian of Macpherſon and Smith appears therefore to be a mutilated work, even though we ſhould ſuppoſe that the ſongs they originally compiled from were the undoubted works of that celebrated bard. But this is far from being the caſe; for even allowing that an Offian ever exiſted and wrote, yet time muſt have introduced ſuch material changes in his works if preſerved merely by tradition during ſo long a period, that their own author would harly know them again. I think it however doubtful, whether ſuch a being as Offian ever appeared in the world. Offian.

"All the ſongs which I met with in the Highlands relative to the Feinne or Fingalians were attributed to Offian: his name ſeems merely a common title, which is aſcribed to all the poetic annals of his race.

"From theſe conſiderations, we ſeem authorized finally to conclude, that the Offian of Macpherſon and Smith is a mutilated compilation from Highland ſongs, aſcribed indeed to that bard, yet very little likely to be his compoſition. Out of theſe they ſelected the beſt parts, and rejected ſuch as they thought might diſcredit the character of Highland antiquity; attributing them to later times, and the ignorant bards of the fifteenth century. Perhaps even the works of Homer himſelf, which had ſo many different editions, very conſiderably varying from each other, were compiled by a ſomewhat ſimilar proceſs from the ancient Greek ſongs.

"Another queſtion remains to be conſidered: Whether theſe ſongs are the compoſitions of the Highlands or of Ireland; and, whether Offian was an Iriſh or a Caledonian Scot? It is my opinion, that the ſongs in this collection evidently manifeſt a connection with Ireland, though their traditional preſervation in Scotland has ſometimes introduced the name of Scotland in its ſtead. One of their principal perſonages is St Patrick, the peculiar apoſtle of Ireland, which alone ſeems ſufficient to mark their origin (A). If therefore we may reaſon from a part to the whole, it is juſt to conclude, that all the other ſongs preſerved in the Highlands relative to the Fingalians are alſo Iriſh. They are wholly confined to the weſtern coaſt of the Highlands, oppoſite Ireland; and the very traditions of the country themſelves acknowledge the Fingalians to be originally Iriſh. The genealogy of Fingal was there given me as follows: Fion Mac Coul, Mac Trathal, Mac Arſht Riogh Erin, or king of Ireland; thus attributing the origin of his race to the Iriſh. I am inclined to believe that theſe notions about Fingal were common to the Scots in the moſt ancient times, and brought by them from Ireland to Scotland, the hereditary ſuperſtition of both races; for, notwithſtanding it may appear moſt probable that Ireland ſhould receive colonies from Scotland than the contrary, we have direct hiſtoric evidences that Scotland received them from Ireland; and no bare theoretic probability deſerves to be oppoſed to the poſitive aſſertions of hiſtory.

"With regard to the Erſe manuſcripts, about which ſo much has been ſaid, it becomes me to acknowledge, that

(A) "The Scots indeed lay claim to the birth of St Patrick, and boaſt alſo his burial-place. Camden, edit. Gibſon, 1695, pp. 921, 1014. And ſo alſo do the Britons, ib. p. 631, 1014; but his life and miracles all agree to attribute it to Ireland. In Gough's edition of Camden, the account of St Patrick is in vol. iii. p. 612, 618. See PATRICK, *St.*

Oſſian

that I have never ſeen enough of them to give any decided opinion: thoſe which I have ſeen induce me to think they principally owe their exiſtence to Ireland.

"I ſhall not repeat what others have ſaid to prove the Fingalians Iriſh; though the connection of Fingal with Ireland has been already warmly aſſerted.

"But an unnoticed though curious, paſſage in Camden affords us the moſt remarkable, and perhaps the moſt convincing proof, that Fingal is an Iriſh hero, which demonſtrates at leaſt that he was indiſputably claimed by the Iriſh 200 years ago. It is contained in an extract (already mentioned) made by Camden, from an account of the manners of the native Iriſh, written by one Good, a Schoolmaſter at Limerick, in 1566. 'They think,' ſays he, ſpeaking of Ireland and its inhabitants, 'the ſouls of the deceaſed are in communion with famous men of thoſe places, of whom they retain many ſtories and ſonnets; as of the giants Finmac-Huyle, Oſkir-Mac-Oſhin, or Oſhin-Mac-Owim; and they ſay, through illuſion, that they often ſee them.'

"The very material importance of this curious paſſage, with relation to the preſent ſubject, it is unneceſſary to urge; for every eye muſt ſee it. We alſo obtain from it new information in reſpect to the laſt part of the hiſtory of Fingal and his heroes; as it enables us to determine who they were with a preciſion which muſt otherwiſe have been wanting, to complete theſe remarks on the Highland ſongs.

"The ſingular agreement of this paſſage with the accounts of Oſſian which were taught me in Scotland is worthy particular remark; it confirms them even in the moſt novel and peculiar inſtances. The Fingalians were generally repreſented as giants: but the moſt remarkable occurence is in the mythologic character attributed by both to Fingal, Oſcar, and Oſſian. In proof of this, I have to obſerve, that Mac Nab deſcribed Fingal as the Odin of the Scots, and that a ſong called *Urnigh Oſſian* evidently ſpeaks of him as ſuch. This curious paſſage repreſents him exactly in the ſame character; a hero with whom the ſpirits of the deceaſed are in communion, who is their chieftain, and the lord of their feaſts. The gods of all the northern nations ſeem to have been of this claſs; mighty heroes, eſteemed once to have been invincible on earth, though perhaps not ever ſtrictly men, nor yet conſtantly regarded as giants. Such are Odin, Thor, and the other Teutonic gods; ſuch are Fingal, Oſcar, and the reſt of the Fingalians among the ancient Scots; ſuch are Hercules, Bacchus, and even Jupiter himſelf, with all his ſons and daughters, among the original Greeks, a people who agreed in many particulars with our own anceſtors in northern Europe. The notions entertained about ghoſts, as an intermediate order of beings between men and divinities, endowed with ſome ſhare of power to do evil, is alſo remarkably congruous with this mythology.

"As Fingal was a divine hero, ſo Oſſian ſeems to have been a divine bard. Some of the gods of the Teutons were bards in like manner; the god Niord and his wife Skada quarrelled in elegant verſe of their own compoſition; and Odin is the relator of his own Edda. Apollo, the poetic deity of Greece, likewiſe ſung the hiſtory of his fellow-deities to men on earth, as well as Orpheus his ſon. The bards and traditional preſervers of ſongs in Scotland and Ireland have ever been fond of aſcribing all ancient poems to this Oſſian, and eſpecially thoſe relating to his own race; and from this cauſe the poems aſcribed to Oſſian are become ſo voluminous. The ancient Egyptians had a ſimilar cuſtom of aſcribing their works to Hermes: ὁι ἡμεῖεροι προϛοτοι τα αυϛων της ϛοφιας ευρηματα αυϛω ανεθισθεσειν ερμου παντα τα οικεια ουϛγγραμματα επονομαζοντες, ſays Jamblichus, S. I. c. 1. which rendered the Hermetic writings equally voluminous. The Egyptians, who poſſeſſed the art of writing, depoſited their works in the adyta of their temples; as the Arabians depoſited their poems of old in the temple of Mecca: but becauſe the Egyptians affixed to them no author's name, except that of Hermes, to him, as to the Scottiſh Oſſian, almoſt all the national literature was attributed by religious flattery.

Oſſian.

"I ſincerely wiſh, that ſome gentleman poſſeſſed of adequate abilities and acquaintance with the Erſe language, would undertake to collect theſe Oſſianic ſongs in their ſimple original ſtate; as they undoubtedly contain much curious knowledge, accumulated in the various ages through which they have deſcended to us, and would probably afford much new information on ſubjects at preſent very ill underſtood. I own, however, that I ſhould rather chooſe to ſeek for them in Ireland than in Scotland; but neither country ſhould be unexplored.

"After having thus freely, though I hope not uncandidly, delivered my ſentiments on the Oſſian of Mr Macpherſon, it becomes me to acknowledge myſelf deeply indebted to it for the pleaſure in peruſal it has frequently afforded me. I am willing, and indeed happy, thus publicly to declare myſelf a warm admirer of it as a literary compoſition. The novelty of its manner, of its ideas, and of the objects it deſcribes, added to the ſtrength and brilliancy of genius which frequently appears in it, have enabled me to read it with more delight, and to return to it more frequently, than almoſt any other work of modern times. And let it be regarded in what light it may, the praiſe of elegant ſelection and compoſition certainly belongs to its editor. If I had not entertained theſe opinions of its merit, I ſhould never have taken ſo much pains to inveſtigate its authenticity; nor indeed can I believe, if the general opinion had not concurred with mine, that the world would ever have waſted ſo much time in diſputing about it."

Since what has now been ſaid concerning the authenticity of the poems of Oſſian was written, the ſame ſubject has been again brought under diſcuſſion, and more keenly and ably agitated than at any former period of the controverſy. Among thoſe who have entered the liſts in this controverſy, Mr Laing the hiſtorian appears by far the moſt powerful opponent of the authenticity of theſe celebrated poems. In a hiſtorical and critical diſſertation * on this ſubject, Mr Laing roundly aſſerts, that the poems, as aſcribed to Oſſian, a bard of the third century, are forgeries, and charges Macpherſon, as well as Smith, (in our opinion too haſtily and raſhly) with direct fraud in impoſing on the world their own productions as the genuine tranſlations of ancient Gaelic poems. The arguments for the detection of theſe forgeries are arranged under eight different heads: 1. The Roman Hiſtory of Britain with which Macpherſon has connected the poems by falſe and incorrect alluſions. 2. The traditionary poems in the Highlands refer to the middle ages,

* *Hiſt of Scotland.*

Offification. ages, that is, about the 9th and 10th centuries. 3. The difficulty or impoſſibility of preſerving poems by oral tradition for a period of 1500 years. 4. The remarkable diverſity in the manners of the Highlanders at the period in which Fingal lived, as deſcribed by hiſtorians, and as they are repreſented by Oſſian; and the contradiction of great refinement at an early age and extreme barbariſm in a future age, are conſidered by Mr Laing as ſtrong and deciſive proofs of forgery. 5. From tracing the origin of the poems to other works of Macpherſon, particularly to an epic poem entitled the Highlander, publiſhed at Edinburgh in 1758, which, being unſucceſsful, appeared afterwards as fragments of ancient poetry, Mr Laing thinks another proof of detection is derived. 6. A ſixth ſource of detection, in his opinion, may be traced to the imitation of the claſſics, ſcripture, and other writings. 7. Mr Laing aſſerts that the ſpecimens of the original produced by Macpherſon were either written or tranſlated into Erſe from the Engliſh original, by the ſuppoſed tranſlator himſelf. 8. From the ambiguous language which Macpherſon ſeems to have employed at different times during the progreſs of the numerous editions of the poems, Mr Laing infers a diſtinct avowal of fraud. But for the illuſtration of the arguments now noticed we muſt refer the reader to the diſſertation itſelf.

It was not to be expected that charges ſo formally adduced, and ſo keenly ſupported, would paſs altogether unnoticed by the admirers of the poems of Oſſian, or the believers in their authenticity. Accordingly, we find that Mr Laing's arguments have been combated by different writers with various ſucceſs. Among the works on this ſide of the queſtion which have fallen in our way, the Eſſay on the Authenticity of the Poems of Oſſian by the Rev. Dr Graham, holds the moſt reſpectable place. But our limits abſolutely preclude us even from ſtating his arguments. We refer therefore to the work itſelf which, the reader will not diſlike to find, is written with ſome degree of elegance, and, what is not uſual in controverſy, with a great degree of temper and moderation. The reader who wiſhes to purſue this inveſtigation, may conſult alſo a Treatiſe on the ſame ſubject by Mr Macdonald, the Report on Oſſian by a Committee of the Highland Society of Scotland; and the Gaelic ſcholar has now an opportunity of peruſing the Originals, which have been publiſhed by Sir John Sinclair.

OSSIFICATION, in the animal economy, the formation of the bones, but more particularly the converſion of parts naturally ſoft to the hardneſs and conſiſtency of bones. Bones, Dr Drake contends, are formed out of the moſt comminute or broken parts of the blood; ſince we ſee that the blood of old men, which by a long courſe of circulation becomes in a manner unfit for the common office of nutrition, will however oſſify, and convert into bones, many of the tendons and ligaments, and even the coats of the veſſels themſelves, whoſe ſubſtance being next to the bones the moſt compact, admits only of the ſmalleſt particles of the blood, which therefore ſooneſt become oſſeous, as they are frequently found. Dr Niſbet's opinion of oſſification is, that in the blood, or a fluid ſecreted from it, there is an oſſifying juice, having particles which are not apparent: that whenever nature deſigns an oſſification between membranes, or within a cartilage, ſhe occaſions a more than uſual afflux of this fluid; which ſo much diſtends the veſſels which were before inviſible, as to make them capable of receiving the red globules of blood, which is always to be ſeen near to the place where oſſification is begun. In this blood gritty bony particles may be felt by the point of a knife, which have been formed by the attraction and coheſion of the particles of the oſſifying juice obſtructed, along with the other groſſer fluids, in the beginning of the veſſels prepared to receive refluent juices. The blood being capable of forming fine membranes, the membranous parts of a bone, which acts as a gluten to keep theſe particles and fibres together, if there be any ſuch, that do not ariſe from the coats of its veſſels, are produced by a coheſion round the cretaceous particles of a part of the fluid, in which they were generated and contained. Thus the membranes of cartilages ſerve as a bed, between or within which the bony particles are depoſited, or ſhoot; but without any intermixture of the particles of the bone and cartilage, or continuation of the fibres of the one ſubſtance to thoſe of the other, as is evident in cartilages containing bones kept long enough in water, and then ſlit; for the bone will, as ſoon as the large veſſels that enter its ſubſtance are divided, ſlip as eaſily, and perhaps eaſier, from it than an acorn does out of its cup: and there is a ſmoothneſs and poliſh of the parts of both cartilage and bone, which ſhow there is no conjunction of the fibres of the two ſubſtances. While the bones are increaſing within cartilages, the cartilages are extended and ſpread out; by which, with the preſſure which they ſuffer, and the great influx of various fluids, and the nutritious matter being hindered to flow freely into them, they decreaſe continually, and at laſt may truly be ſaid to be entirely deſtroyed. Dr Buddeus endeavours to prove, that the preternatural oſſifications, which are commonly ſaid to be formed in different parts of the body, do not deſerve that name; for that theſe hard ſubſtances have ſcarcely any other properties of bone except whiteneſs and hardneſs.

Offory. || Oſtalric.

OSSORY, the weſt diviſion of Queen's-county in Ireland.

Ossory, *Bale biſhop of.* See Bale.

OSSUNA, an ancient and conſiderable town of Andaluſia in Spain, with an univerſity, an hoſpital, and the title of a duchy. N. Lat. 37. 8. W. Long. 4. 18.

OSTADE, Adrian Van, an eminent Dutch painter born at Lubec in 1610. He was a diſciple of Francis Hals, in whoſe ſchool Brouwer was cotemporary with him, where they contracted an intimate friendſhip. The ſubjects of his pencil were always of a low kind, he having nearly the ſame ideas as Teniers; diverting himſelf with clowns and drunkards in ſtables, ale-houſes, and kitchens. His pictures are ſo tranſparent and highly finiſhed, that they have the poliſh and luſtre of enamel: they have frequently a force ſuperior to Teniers; yet it were to be wiſhed that he had not deſigned his figures ſo ſhort. He is perhaps one of the Dutch maſters who beſt underſtood the *chiaro obſcuro;* and he was often employed to paint figures for the beſt landſcape painters of his countrymen. He died in 1685. His works, eſpecially thoſe of his beſt time and manner, are very ſcarce; ſo that when they are to be purchaſed, no price is thought too much for them. His prints etched by himſelf, large and ſmall, conſiſt of 54 pieces.

OSTALRIC, a town of Catalonia, in Spain, having a ſtrong caſtle, and ſeated on the river Tordera, in E. Long. 2. 45. N. Lat. 24. 44.

OSTEND,

Oſtend, Oſteocolla.

OSTEND, a very ſtrong ſea-port town of the Netherlands, in Auſtrian Flanders, with a good harbour and a magnificent town-houſe. It is not very large, but it is well fortified. It was much more conſiderable before the long ſiege of the Spaniards, which continued from 1601 to 1604, when it was almoſt entirely reduced to aſhes. The Dutch loſt 50,000 men, and the Spaniards 80,000. Iſabella Eugenia, governante of the Netherlands, made a vow ſhe would not ſhift her ſmock before Oſtend ſurrendered; but before the town was taken it had greatly changed its colour. However, the ladies of the court, to keep her in countenance, had theirs dyed, that they might be like that of their miſtreſs. This place was taken by the Dutch in 1706, but reſtored to the emperor in 1724, when an Eaſt India company was eſtabliſhed here, but entirely ſuppreſſed by treaty in 1731. It was taken by the French in Auguſt 1745, after 10 days ſiege, but reſtored by the treaty of Aix-la-Chapelle. It was overrun by the French Republicans, with Dumourier at their head, but was quickly recovered by the junction of the allies. It was evacuated by the French in 1793, and they repoſſeſſed it in 1794. Here the Britiſh landed a body of troops in May 1798, who blew up and deſtroyed the works of the Bruges canal; but the wind ſhifting before they could re-embark, they were under the neceſſity of ſurrendering to the French. It is 10 miles W. of Bruges, eight N. E. of Newport, 22 N. E. of Dunkirk, and 60 N. W. of Bruſſels. E. Long. 2. 56. N. Lat. 51. 14.

OSTEOCOLLA, οστεοκολλα, in *Natural Hiſtory*, a white or aſh-coloured ſparry ſubſtance, in ſhape like a bone, and by ſome ſuppoſed to have the quality of uniting broken bones, on which account it is ordered in ſome plaſters; a ſuppoſition, we fear, which is not warranted by experience. It is found in long, thick, and irregularly cylindric pieces, which are in general hollow, but are ſometimes filled up with a marly earth, and ſometimes contain within them the remains of a ſtick, round which the oſteocolla had been formed; but though it is plain from thence that many pieces of oſteocolla have been formed by incruſtations round ſticks, yet the greater number are not ſo, but are irregularly tubular, and appear to be formed of a flat cake, rolled up in a cylindric ſhape. The cruſts of which theſe are compoſed do not form regular concentric circles round the internal cavity, as muſt have been the caſe had they been formed by incruſtation. On the other hand, they plainly ſhow that they were once ſo many thin ſtrata, compoſing a flat ſurface, which has afterwards been rolled up, as one might do a paper three or four times doubled, into two, three, or moral ſpiral lines; in which caſe, each ſingle edge of the paper would be everywhere a regular point of a continued ſpiral line drawn from a given point; but they would by no means be ſo many detached concentric circles. The oſteocolla is found of different ſizes, from that of a crow-quill to the thickneſs of a man's arm. It is compoſed of ſand and earth, which may be ſeparated by waſhing the powdered oſteocolla with water, and is found both in digging and in ſeveral brooks, in many parts of Germany, and elſewhere. It is called hammoſteus in many parts of Germany. It has this name in theſe places from its always growing in ſand, never in clay, or any ſolid ſoil, nor even in gravel. Where a piece of it any where appears on the ſurface, they dig down for it, and find the branches run ten or twelve feet deep. They uſually run ſtraight down, but ſometimes they are found ſpreading into many parts near the ſurface, as if it were a ſubterraneous tree, whoſe main ſtem began at 12 feet depth, and thence grew up in a branched manner till met by the open air. The main trunk is uſually as thick as a man's leg, and the branches that grow out from it are thickeſt near the trunk, and thinner as they ſeparate from it. The thinneſt are about the ſize of a man's finger. The people employed to collect it, when they cannot find any mark of it on the ſurface, ſearch after the ſpecks of white or little lumps of whitiſh ſoft matter, which they find lying in various parts on the top of the ſand. Theſe always lead them either to a bed of perfect oſteocolla, or to ſome in the formation. If they miſs of it, they ſtill find a ſubſtance like rotten wood; which, when traced in its courſe, is found to proceed from a main trunk, at the depth of that of the oſteocolla, and to ſpread itſelf into branches in the ſame manner. The diggers call this ſubſtance the flower of oſteocolla, or hammoſteus.

Oſteocoll || Oſtervald.

The oſteocolla found in the earth is at firſt ſoft and ductile, but in half an hour's time, if expoſed to the air, it becomes as hard as we find it in the ſhops. The method to take up a perfect piece for a ſpecimen is to open the ground, clear away the ſand, and leave it ſo for an hour or thereabouts: in this time it will harden, and may be taken out whole. It is certain, that the oſteocolla is produced at this time; for if a pit be cleared of it, there will more grow there in a year or two, only it will be ſofter, and will not harden ſo eaſily in the air as the other. What the rotten ſubſtance reſembling the decayed branches of trees is, we cannot determine, unleſs it really be ſuch; but the opinion of the common people, that it is the root of ſomething, is abſurd, becauſe its thickeſt part always lies at the greateſt depth, and the branches all run upwards. The oſteocolla is a marly ſpar, which concretes round this matter; but what it is that determines it to concrete no where on the ſame ground but about theſe branches, it is difficult to ſay. The rottenneſs of this ſubſtance, which forms the baſis of the oſteocolla, renders it very liable to moulder and fall away; and hence it is that we uſually ſee the oſteocolla hollow. Sometimes it is found ſolid; but in this caſe there will be found to have been a vegetable matter ſerving as its baſis, and inſtead of one branch, it will be found in this caſe to have concreted about a number of fibres, the remains of which will be found in it on a cloſe examination. See Philoſ. Tranſ. N° 39.

OSTEOLOGY, that part of anatomy which treats of the bones. See ANATOMY, Part I.

OSTERVALD, JOHN FREDERIC, a famous Proteſtant divine, was born at Neufchattel in 1663; and made ſuch rapid progreſs in his ſtudies, that he became maſter of arts at Saumur before he was 16 years of age. He afterwards ſtudied at Orleans and at Paris. At his return to Neufchattel in 1699, he became paſtor of the church there; and contracted a ſtrict friendſhip with the celebrated John Alphonſus Turretin of Geneva, and the illuſtrious Samuel Werenfels of Baſil. The union of theſe three divines, which was called the *Triumvirate of the divines of Swiſſerland*, laſted till his death. Mr Oſtervald acquired the higheſt reputation, by his virtues, his zeal in inſtructing his diſciples, and reſtoring eccleſiaſtical

Oftia, Oftiacks.

ſiaſtical diſcipline. He wrote many books in French; the principal of which are, 1. A Treatiſe concerning the Sources of Corruption, which is a good moral piece. 2. A Catechiſm, or Inſtruction in the Chriſtian Religion; which has been tranſlated into German, Dutch, and Engliſh; and the Abridgement of the Sacred Hiſtory, which he prefixed to it, was tranſlated and printed in Arabic, in order to be ſent to the Eaſt Indies, by the care of the Society for the Propagation of the Goſpel; and that Society eſtabliſhed in London, paid him a high compliment, by admitting him an honorary member. 3. A treatiſe againſt Impurity. 4. An edition of the French Bible of Geneva, with Arguments and Reflections, in folio. 5. *Ethica Chriſtiana*. 6. *Theologiæ Compendium*, &c. He died in 1747, regretted by all who knew him.

OSTIA, a town ſituated at the mouth of the Tiber, about 12 miles to the weſtward of Rome. It was built by Ancus Martius, the fourth king of Rome, and was called *Oſtia Tiberina*, in the plural number, *i. e.* the two mouths of the Tiber, which were ſeparated by the Holy Iſland, an equilateral triangle, whoſe ſides were each of them computed at about two miles. The colony of Oſtia was founded immediately beyond the left or ſouthern, and the port immediately beyond the right or northern branch of the river; and the diſtance between their remains meaſures ſomething more than two miles on Cingolani's map. In the time of Strabo, the ſand and mud depoſited by the Tiber had choked the harbour of Oſtia; the progreſs of the ſame cauſe has added much to the ſize of the Holy Iſland, and gradually left both Oſtia and the port at a conſiderable diſtance from the ſhore. The dry channels (*fiumi morti*), and the large eſtuaries (*ſtagno di Ponente, de Levante*), mark the changes of the river, and the efforts of the ſea. Its port was one of the moſt ſtupendous works of Roman magnificence, and it was a long time one of the beſt towns on the coaſt; but having been deſtroyed by the Saracens, and the harbour choked up, as mentioned above, it has not been able ſince to recover itſelf. Though it be an inconſiderable place, and but poorly inhabited by reaſon of the badneſs of the air, yet it is the ſee of a biſhop, who is always deacon of the cardinals, and crowns the Pope. The old Oſtia, where are ſeen the ruins of the ancient harbour, is beyond New Oſtia, towards the ſea; the latter is but a little cluſter of houſes, with a ſmall caſtle. It is 12 miles S. W. of Rome. E. Long. 12. 24. N. Lat. 41. 44. There were ſaltworks in Oſtia, called *Salinæ Oſtienſes*, as early as the times of Ancus Martius (Livy); from which the *Via Salaria*, which led to the Sabines, took its name, (Varro). It gave name to one of the gates of Rome, which was called *Oſtienſis* (Ammian).

OSTIACKS, a people of Siberia in Aſia. They live upon the banks of the rivers Oby and Yeniſey, and on thoſe of ſome other rivers which fall into theſe. Theſe people are very poor, and very lazy, and in the ſummer-time live moſtly upon fiſh. They are of a middle ſize, with broad faces and noſes, and yelloviſh or red hair. All their garments from top to toe are made of fiſh ſkins, for they have neither linen nor woollen: and indeed they might almoſt as well go naked. Their greateſt diverſion is hunting; and they go together in crowds, with a weapon like a large knife faſtened in a ſtick. In ſummer they take and dry the fiſh which ſerves them in winter; and when that ſeaſon begins, they go into the woods with their bows and arrows, their dogs and nets, to kill ſables, ermines, bears, reindeer, elks, martens, and foxes. Part of the furs of theſe is paid as a tax to the empreſs of Ruſſia, and the reſt are ſold at a ſtated price to the Ruſſian governors, but ſometimes they are allowed to diſpoſe of them to private perſons. Oſtiacks

They chiefly live upon veniſon, wild-fowl, fiſh, and roots, for they have neither rice nor bread. They drink for the moſt part water, and it is ſaid they can very well reliſh a draught of train oil. They are immoderately fond of tobacco, and of ſwallowing the ſmoke, which ſoon intoxicates them. In the winter they build their huts in woods and foreſts, where they find the greateſt plenty of game, and dig deep in the earth to ſecure themſelves from the cold, laying a roof of bark or ruſhes over their huts, which are ſoon covered with ſnow. In ſummer they build above ground on the banks of the rivers, to enjoy the convenience of fiſhing, and make no difficulty of forſaking their habitations. They have a ſort of princes among them, in one of whoſe houſes ſome European travellers found four wives (A). One of theſe had a red cloth coat on, and was ſet off with all ſorts of glaſs beads. There was no other furniture than cradles and cheſts, made of the bark of trees ſewed together. Their beds conſiſted of wood ſhavings, almoſt as ſoft as feathers, and their children lie naked upon them in cradles. They can neither read nor write, nor do they cultivate the land; and ſeem totally ignorant of times paſt. They have neither temples nor prieſts; and their boats are only made of the bark of trees ſewed together. Their religion is Pagan; and they have ſome little brazen idols, tolerably well caſt, repreſenting men and animals, made of wood and earth, all of which are dreſſed in ſilks, in the manner of Ruſſian ladies. In general, however, they are ill made, every man being his own carver. They place them on the tops of hills, in groves, and in the pleaſanteſt places their country affords, and ſometimes before their huts; yet they have no ſet time for performing religious worſhip, but apply to their gods for ſucceſs in all their undertakings. As they have no regular prieſts, every old man may devote himſelf to that ſervice, and the office is frequently performed by the maſters and heads of families. Strahlenberg ſays, that when he was among them he ſaw one of their temples, which was built of wood in an oblong form, like a great barn, covered at

(A) They may have as many wives as they pleaſe, and make no ſcruple of marrying their neareſt relations. They purchaſe a wife of her relations for three or four rein-deer, and take as many as they pleaſe, returning them again if they do not like them, only loſing what they gave for the purchaſe. Upon the birth of their children ſome give them the name of the firſt creature they happen to ſee afterward. Thus the child has frequently the name of an animal, and you hear a man call his ſon perhaps *Sabatſki*, or my little dog; others call their children according to the order of their birth, as *Firſt*, *Second*, *Third*, &c.

Oſtiacks || Oſtraciſm.

the top with birch bark. At the end of the wall ſupporting the gable was a kind of altar, made of timber, on which were placed two idols, repreſenting a man and woman dreſſed in all ſorts of rags; and round theſe were other ſmall figures, as deer, foxes, and hares, all which were roughly carved in wood, and alſo clothed in rags. They did not appear to have much devotion, nor any great reverence for their idols. When they offer ſacrifices, they preſent the beaſt to the idol; and having bound it, an old man puts up the petitions of thoſe who brought the offering; he then lets fly an arrow at the beaſt, and the people aſſiſt in killing it. It is then drawn three times round the idol; and the blood being received into a veſſel, they ſprinkle it on their houſes; they afterwards dreſs the fleſh and eat it, rejoicing and ſinging their country ſongs: they alſo beſmear the idol with the blood of the ſacrifice, and greaſe their mouths with the fat. What they cannot eat they carry home to their families, and make preſents of it to their neighbours: they as often ſacrifice a fiſh as a beaſt. At the concluſion of the feaſt they ſhout, to ſhow their gratitude to the idol for his attending and accepting their devotions; for they are perſuaded that the ſaint or hero repreſented by the image always attends their ſacrifices, which when over he returns to his abode in the air. There is nothing more ſurpriſing, nor, if properly improved, is there any thing more inſtructing, than the hiſtory of ſuperſtition. It is with this view that we have given ſo enlarged a view of the Oſtiacks, longer, ſome may imagine, than their importance demands. It would, however, in our opinion, be improper to let ſuch an opportunity ſlip of exhibiting the extreme weakneſs of unaſſiſted reaſon, and the conſequent neceſſity of a divine revelation. That the religion of theſe ignorant and miſguided Pagans is the corruption of a primitive revelation, we think at leaſt probable; nor do we ſee any way of ſo ſatisfactorily accounting for the univerſal uſe of ſacrifices. The Oſtiacks are obliged to take an oath of fidelity to the Ruſſian government; and on theſe occaſions they uſe the following ceremony. After laying down a bear ſkin and an axe, and holding over it a piece of bread on a knife, they ſay, "In caſe I do not to my life's end prove true and faithful to the ſupreme government of the country, or if I knowingly and willingly break through my allegiance, or be wanting in the duty I owe to the ſaid ſupreme government, may the bear tear me to pieces in the wood; may the bread I eat ſtick in my throat and choke me; may the knife ſtab me, and the axe cut off my head." The like ceremony is uſed among them in the depoſition of a witneſs.

OSTRACION, a genus of fiſhes belonging to the order *Cartilaginei*. See ICHTHYOLOGY, p. 103.

OSTRACISM, in Grecian antiquity, denotes the baniſhment of ſuch perſons whoſe merit and influence gave umbrage to the people of Athens, leſt they ſhould attempt any thing againſt the public liberty. This puniſhment was called *oſtraciſm*, from the Greek word ὄστρακον, which properly ſignifies a "ſhell;" but when applied to this object, it is uſed for the billet on which the Athenians wrote the names of the citizens whom they intended to baniſh. The learned are divided with regard to the ſubſtance of which this billet was formed: ſome inſiſt that it was a ſmall ſtone, or a piece of brick; ſome that it was a piece of bark; and others aſſert, that it was a ſhell. The word admits moſt of theſe interpretations. But what determines its true ſenſe, is the epithet given it by ancient authors, of *ceramitè maſtix*; which words ſignify, "The puniſhment of potter's clay;" and this expreſſion ſeems to us a proof, that the word ὄστρακον, when applied on this occaſion, ſignifies a "piece of baked earth, in the form of a ſhell;" and undoubtedly the Latin authors had this idea of the word here, for they tranſlated it by *teſtula*. Oſtraciſm.

The ancients are likewiſe divided with regard to the time when oſtraciſm was inſtituted. But they all agree, that the perſon who moved the law was its firſt victim. But as to the name of its patron, and the time of its eſtabliſhment, they differ extremely. Many are of opinion, that oſtraciſm owes its origin to very remote times.

However that be, the puniſhment of oſtraciſm was inflicted by the Athenians when their liberty was in danger. If, for inſtance, jealouſy or ambition had ſowed diſcord among the chiefs of the republic; and if different parties were formed, which threatened ſome revolution in the ſtate; the people aſſembled to propoſe meaſures proper to be taken in order to prevent the conſequences of a diviſion which in the end might be fatal to freedom. Oſtraciſm was the remedy to which they uſually had recourſe on theſe occaſions; and the conſultations of the people generally terminated with a decree, in which a day was fixed for a particular aſſembly, when they were to proceed to the ſentence of oſtraciſm. Then they who were threatened with baniſhment, omitted no aſſiduity or art which might gain them the favour of the people. They made harangues to evince their innocence, and the great injuſtice that would be done them if they were baniſhed. They ſolicited, in perſon, the intereſt of every citizen; all their party exerted themſelves in their behalf: they procured informers to vilify the chiefs of the oppoſitite faction. Some time before the meeting of the aſſembly, a wooden incloſure was raiſed in the forum, with ten doors, *i. e.* with as many as there were tribes in the republic; and when the appointed day was come, the citizens of each tribe entered at their reſpective door, and threw into the middle of the incloſure the ſmall brick on which the citizen's name was written whoſe baniſhment they voted. The archons and the ſenate preſided at this aſſembly, and counted the billets. He who was condemned by 6000 of his fellow citizens, was obliged to quit the city within ten days; for 6000 voices, at leaſt, were requiſite to to baniſh an Athenian by the oſtraciſm.

The Athenians, without doubt, foreſaw the inconveniences to which this law was ſubject; but they choſe rather, as Cornelius Nepos hath remarked, ſometimes to expoſe the innocent to an unjuſt cenſure, than to live in continual alarms. Yet as they were ſenſible that the injuſtice of confounding virtue and vice would have been too flagrant, they ſoftened, as much as they could, the rigour of oſtraciſm. It was not aggravated with the circumſtances which were moſt diſhonourable and ſhocking in the ordinary mode of exile. They did not confiſcate the goods of thoſe who were baniſhed by oſtraciſm. They enjoyed the produce of their effects in the places into which they were baniſhed; and they were baniſhed only for a certain time. But in the common baniſhment, the goods of the exiles were always confiſcated, and no hopes were given them of ever returning to Athens.

The

Oſtraciſm. The ſcholiaſt of Ariſtophanes informs us of a third difference betwixt oſtraciſm and the common baniſhment. He ſays, that a particular place of retirement was aſſigned to thoſe who were baniſhed by oſtraciſm, which was not appointed to the other exiles. We ſuſpect, however, the truth of this obſervation; for Themiſtocles was certainly not limited in his baniſhment. That great man, as we are told by Thucydides, though his chief reſidence was at Argi, travelled over all the Peloponneſus.

This puniſhment, far from conveying the idea of infamy, became, at Athens, a proof of merit, by the objects on which it was inflicted; as Ariſtides the ſophiſt juſtly obſerves, in his ſecond declamation againſt the Gorgias of Plato, where he ſays, that oſtraciſm was not an effect of the vindictive ſpirit of the people againſt thoſe whom it condemned; that the law, whether good or bad, (for he enters not into an examination of the queſtion), was only meant to prune the luxuriant growth of tranſcendent merit; that it condemned to an exile of ten years, only thoſe illuſtrious men who were accuſed of being exalted far above other citizens by their conſpicuous virtue; and that none of that public indignation was ſhown to the exiles by oſtraciſm, which commonly breaks out againſt criminals.

Such were the mitigations with which this law was introduced among the Athenians: and by them we ſee that they were ſenſible of all the inconveniences to which it was ſubject. They were indeed too enlightened a people, not to foreſee the many inſtances of injuſtice which it might produce; that if in ſome reſpects it would be favourable to liberty, in others it would be its enemy, by condemning citizens without allowing them a previous defence, and by making a capricious and envious people arbiters of the fate of great men; that it might even become pernicious to the ſtate, by depriving it of its beſt ſubjects, and by rendering the adminiſtration of public affairs an odious employment to men of capital talents and virtue.

However great the inconveniences of oſtraciſm were, it would not have been impoſſible to avoid them; and we may add, that this law would have been of ſervice to the ſtate, if the people by whom it was inſtituted had always had diſcernment enough only to give it force on ſuch occaſions as endangered liberty. But its fate was like that of almoſt all other laws which the wiſeſt legiſlators have planned for the good of communities. Deſtined by their inſtitution to maintain order, to repreſs injuſtice, and to protect innocence, men have found ways to pervert their application, and have made them inſtruments to gratify their private paſſions. Thus oſtraciſm was eſtabliſhed to prevent the dangerous enterpriſes of the great, and to preſerve the vigour of the democracy; but the people of Athens, naturally jealous and envious, exerted that law, to remove men of eminent merit from the ſtate, by whoſe preſence they were reproved and intimidated. The fear of tyranny was commonly but a ſpecious pretext with which they veiled their malignity. The repeated victories which they had gained over the Perſians, had rendered them, ſays Plutarch, proud and inſolent. Intoxicated with their proſperity, they arrogated all its glory to themſelves; they were jealous of thoſe citizens whoſe political and military talents were the ſubjects of public eulogium. They thought the glory acquired by great men diminiſhed their own reputation. An Athenian no ſooner diſtinguiſhed himſelf by a ſplendid action, than he was marked out as a victim by public envy. His reputation was a ſufficient reaſon for his baniſhment. Oſtracites || Oſwestry.

OSTRACITES, in *Natural Hiſtory*, a name uſed for the foſſile oyſters, common in many parts of England. They are of various ſhapes and kinds; and the name is by ſome authors made to ſignify the ſhell itſelf, when preſerved in its native ſtate and condition; as is the caſe with thoſe about Woolwich and Blackheath; and by others, the ſtones caſt or formed in thoſe ſhells, or in cavities from whence they have been waſhed away.

OSTREA, the OYSTER, a genus of ſhell-fiſh belonging to the order of vermes teſtacea. See OSTREA, CONCHOLOGY *Index*.

OSTRICH. See STRUTHIO, ORNITHOLOGY *Index*.

OSTROVIZZA, in Dalmatia (ſee DALMATIA), ſuppoſed by ſome to be the Arauzona, and by others the Stlupi of the ancients, though probably it has no connection with either the one or the other. It was purchaſed in 1410 by the republic of Venice, for 5000 ducats, and ſome pieces of land beſides. Its fortreſs, which was ſeated on a rock, perpendicularly cut all round, and deſervedly reckoned impregnable before the uſe of artillery, was taken by Soliman in 1524, but ſoon after reſtored to the dominion of Venice. At preſent, no traces of its fortification remain, and it is only a bare and iſolated maſs.

OSTUNI, a town of Italy, in the kingdom of Naples, and in the Terra di Otranto, with a biſhop's ſee. Its territory is well cultivated, and abounds with olives and almonds. It is ſeated on a mountain near the gulf of Venice, in E. Long. 17. 49. N. Lat. 49. 59.

OSWEGO, a fort of North America, ſeated on the eaſt ſide of a river of the ſame name, and on the ſouth ſide of the lake Ontario, in W. Long. 76. 30. N. Lat. 43. 15.

OSWEIZEN, a town of Poland, in the palatinate of Cracovia, formerly having the title of a duchy. It carries on a great trade in ſalt, and is ſeated on the river Viſtula. E. Long. 19. 47. N. Lat. 50. 1.

OSWESTRY, an old town of Shropſhire, in England, 172 miles from London, with a caſtle, a wall, and a ditch, and was anciently a borough. It is a place celebrated in Saxon hiſtory and legendary piety. On this ſpot, Auguſt 5. 642, was fought the battle between the Chriſtian Oſwald, king of the Northumbrians, and the pagan Penda, king of the Mercians, in which Oſwald was defeated, and loſt his life. The barbarian victor cut the body of the ſlain prince in pieces, and ſtuck them on ſtakes diſperſed over the field as ſo many trophies; but, according to others, his head and hands only were thus expoſed. A prince ſo dear to the church as Oſwald, and ſo attached to the profeſſors of the monaſtic life, received every poſthumous honour they could beſtow. He was raiſed to the rank of a ſaint, and his ſanctity confirmed by numberleſs miracles, which are too numerous and too trifling to admit of particular deſcription. Its church, which is of no great antiquity, was formerly a monaſtery, and was called Blancminſter. It is, however, ſpacious, and has a handſome plain tower. In the years 1542 and 1567, this town ſuffered much by fire. It is governed by two bailiffs, burgeſſes, &c. and once had a great trade in Welch cottons and flan-

Osymandes. nels; but this is now much decayed. There is now ſcarcely a tolerable houſe for travellers. But beſides a good grammar ſchool, it is noted for an excellent charity-ſchool for 40 boys, beſides girls, which has the beſt methods for exciting the emulation of the children in their learning; for 20 of the boys are ſet to ſtrive againſt 20 others for ſhoes, and the 20 who perform their taſk beſt have ſhoes firſt; then 10 of the boys are ſet againſt 10 others for the like premium, and ſo on till they are all ſhod: ſo in the girls ſchool a ſhift is put up for the beſt ſpinner, a head-dreſs for the beſt ſempſtreſs, a pair of ſtockings for the beſt knitter, a Bible for the beſt reader, and a copy-book for the beſt writer. In the wall with which the town was fortified there were four gates. That called the *Block-gate* is demoliſhed; the New-gate, Willow-gate, and the Beatrice-gate, ſtill remain. The laſt is a handſome building, with a guard-room on both ſides. There are only two fragments of the caſtle remaining. It ſtood on an artificial mount, ſurrounded by a foſſe, extending to the Willow-gate.

OSYMANDES, a famous king of Egypt, was, according to ſome authors, the firſt monarch who collected a great number of books for the purpoſe of forming a library. To this curious collection he gave the title of *Pharmacy of the Soul*. Of all the monuments of the kings of Thebes, that of Oſymandes is one of the moſt magnificent. "He appears (ſays an elegant author) to have been a prince of great elegance and taſte in his day. Diodorus Siculus deſcribes many ſumptuous edifices erected by him; among thoſe edifices his palace or mauſoleum, whichſoever it was, has been eminently diſtinguiſhed for the paintings and ſculptures with which it was adorned. When we look to the ſubjects of thoſe works, we ſhall have reaſon to think that no man in any age could diſcover a fairer and more enlightened judgement than he did in the employment of the genius around him, which was not tamely devoted to dull or contracted objects, nor laviſhed on ſcenes of ſavage life, nor wholly engroſſed in alluſions to himſelf, but ſenſibly enlarged to a variety of contemplation which might become a great ſovereign; and in each of thoſe parts the ſubject was characteriſtically great.

Bromley's Hiſt. of the Fine Arts, vol. i.

"* In one place was repreſented, in a multitude of ſculptures, his expedition againſt the Bactrians, a people of Aſia, whom he had invaded with 400,000 foot, and 20,000 horſe, and whom he conquered. In another part was diſplayed the variety of fruits and productions, with which Pan, the great ſource of all things, had enriched the fertile land over which Oſymandes reigned. A third group of figures repreſented the monarch himſelf, as the high prieſt of the country, offering to the gods the gold and ſilver which he drew every year from the mines of Egypt. In another part of the edifice was exhibited, in an infinite number of figures, an aſſembly of judges, in the midſt of a great audience attentive to their deciſions; the preſident or chief of thoſe judges, ſurrounded by many books, wore on his breaſt a picture of Truth with her eyes ſhut—thoſe emphatic emblems, beyond which no age could go for the impreſſion of that wiſdom and impartiality which ought to prevail in adminiſtrative juſtice."

** Diod. Sic.* lib. i. p. 45. edit. Rhodom.

In ſhort, we cannot without aſtoniſhment read the account which Diodorus Siculus gives of the almoſt incredible magnificence of this prince, and of the immenſe ſums which he ſpent upon thoſe grand works. Amongſt a variety of other ſurpriſing curioſities, was to be ſeen a ſtatue in the attitude of ſitting, which was the largeſt in all Egypt, the length of one of the feet being ſeven cubits. Not only the art of the ſculptor, but alſo the beauty of the ſtone, which was perfect in its kind, contributed to render this a maſterpiece of ſculpture. It bore the following inſcription: *I am OSYMANDES, king of kings; whoever will diſpute with me this title, let him ſurpaſs me in any of my works.*

Oſymandes to Otaheite.

Indeed (to uſe the words of the ſame elegant author quoted above) "the palace or mauſoleum of this accompliſhed prince muſt give us a ſtriking aſſurance of the progreſs which had been made in the arts at that time; whether he lived, as ſome have thought †, the immediate ſucceſſor of the firſt Buſiris, which was ſomewhat later than the period of Semiramis; or, as others have conceived ‡, ſubſequent to Seſoſtris, which would be 400 years later. Diodorus Siculus, who deſcribes that edifice, ſays nothing of the age in which Oſymandes lived; every opinion, therefore, on that point muſt be conjecture. We ſhall only remark, that there is nothing in the works of art in that edifice which ſhould appear too much for the earlieſt age in which that monarch has been placed, when we look back to what was done of thoſe works in a period full as early by Semiramis in Aſſyria."

† See *Rollin's Anc. Hiſt.*

‡ *Marſham*, p. 403. *Gouguet*, vol. ii. p. 141.

OTACOUSTIC INSTRUMENT, or *Auricular Tube*, an inſtrument to facilitate the hearing. See ACOUSTICS.

OTAHEITE, a celebrated iſland of the South ſea, ſituated in W. Long. 149. 13. S. Lat. 17. 46. It was diſcovered by Captain Wallis in 1767; afterwards Mr Bougainville touched here; and it was viſited by Captain Cook in 1773 and 1774, who had in 1769 ſailed round the iſland in a boat to obſerve the tranſit of Venus.

The iſland conſiſts of two diſtinct kingdoms, which are united by a narrow neck of land; the larger being called by the natives *Tiarrabou*, or *O-Taheitee Nue*; the ſmaller one *Opoureonou*, or *O-Taheitee-Ete*. The circumference of both iſlands is about 40 leagues; the larger kingdom being divided into 43 diſtricts. The country has a delightful romantic appearance. The coaſt, viewed from the ſea, preſents a moſt beautiful proſpect, being elevated like an amphitheatre. The iſland is ſkirted with a reef of rocks, and towards the ſea is level, being covered with fruit trees of various kinds, particularly the cocoa-nut. At the diſtance of about three miles from the ſhore, the country riſes into lofty hills that are covered with wood, and terminate in peaks, from which large rivers are precipitated into the ſea. The ſtones everywhere appear to have been burnt, not one being found which did not give manifeſt ſigns of fire; ſo that there is great reaſon for ſuppoſing that this and the neighbouring iſlands are either the ſhattered remains of a continent, or were torn from rocks, which from the creation of the world have been the bed of the ſea, and thrown up in heaps to a height which the waters never reach. What is further extraordinary, the water does not gradually grow ſhallow as we approach the ſhore, but is of immenſe depth cloſe by the land; and the iſlands in this neighbourhood are almoſt everywhere ſurrounded by reefs which appear to be rude and broken in the manner that ſome violent concuſſion would naturally leave the ſolid ſubſtance of the

1 Appearance of the country.

Otaheite. the earth; and Mr Forſter ſaw a rock with projecting longitudinal angles of black compact baſaltes. The exterior ranges of hills are ſometimes entirely barren, and contain a great quantity of yellowiſh clay, mixed with iron ochre; but others are covered with mould and wood like the mountains in the internal parts of the country. Pieces of quartz are ſometimes met with here; but no indications of precious minerals or metals of any kind have been obſerved, iron only excepted.

2 Climate. The air is extremely healthy and pleaſant; the heat is not troubleſome; and freſh meat will keep very well for two days, and fiſh one day. The winds do not blow conſtantly from the eaſt, but generally a little breeze from eaſt to ſouth-ſouth-eaſt. The tide riſes very little; and, being governed by the winds, is very uncertain. "The climate," ſays M. Bougainville, "is ſo healthy, that notwithſtanding the hard labour of the ſhips companies while on ſhore, though the men were continually in the water, and expoſed to the meridian ſun, though they ſlept upon the bare ſoil, and in the open air, none of them fell ſick; thoſe who were afflicted with the ſcurvy, and were ſent on ſhore, regained their ſtrength: although they were obliged to aſſiſt in the erecting of a fort, and had ſcarce one uninterrupted night, yet they were ſo far recovered in the ſhort ſpace of time they continued there, that they were afterwards perfectly cured on board."

3 High mountains. Notwithſtanding the great height of the inland mountains of Otaheite, none of their rocks have the appearance of barrenneſs, every one of them being covered with woods. "We hardly believed our eyes," ſays M. de Bougainville, "when we ſaw a peak covered with woods up to its higheſt ſummit, which riſes above the level of the mountains in the interior parts of the ſouthern quarter of this iſland. Its apparent ſize ſeemed to be more than 30 toiſes in diameter, and grew leſs in breadth as it roſe higher. At a diſtance it might have been taken for a pyramid of immenſe height, which the hand of an able ſculptor had adorned with garlands and foliage." One of the mates of the Dolphin, with a party of marines and ſeamen, penetrated into the interior parts of the iſland; and having aſcended, with great difficulty, a mountain which they ſuppoſed to be a mile high, they diſcovered mountains before them ſo much higher, that with reſpect to them they ſeemed to be in a valley: towards the ſea the view was enchanting, the ſides of the hills were beautifully clothed with wood, villages were everywhere interſperſed, and the valleys between them afforded a ſtill richer proſpect; the houſes ſtood thicker, and the verdure was more luxuriant; and Mr Forſter, with other gentlemen, aſcended to the ſummit of one of the higheſt mountains in the iſland, from whence they had a proſpect of the iſland of Hualine, and ſome others lying at the diſtance of 40 leagues; from which we may form ſome judgement of the prodigious height of that mountain. The view of the fertile plain below them, and of a river making innumerable meanders, was delightful in the higheſt degree. The vegetation on the upper part of the mountains was luxuriant, and the woods conſiſted of many unknown ſorts of trees and plants.

4 Soil and produce. The ſoil of this iſland is a rich fat earth, of a blackiſh colour. It produces ſpontaneouſly, or with the ſlighteſt culture imaginable, a great variety of the moſt excellent fruits; ſuch as bread-fruit, cocoa nuts, bananas of 13 ſorts, plantains, potatoes, yams, a fruit known here by the name of *jambu*, and reckoned moſt delicious; ſugar-canes, which the inhabitants eat raw; ginger; turmeric; a root of the ſalep kind, called by the inhabitants *pea*; a plant called *ethee*, of which the root only is eaten; a fruit that grows in a pod like that of a large kidney bean, by the natives called *ahee*; a tree called *wharra*, which produces fruit ſomething like the pine-apple, and which is known in the Eaſt Indies by the name of *pandanes*; a ſhrub called *nono*; the *morinda*, which alſo produces fruit; a ſpecies of fern; a plant called *theve*; and the Chineſe paper-mulberry, of the bark of which they make their cloth; an herb which the inhabitants eat raw, its flavour ſomewhat reſembling that of the Weſt India ſpinage called *calletoon*, but its leaf very different; a plant which the natives call *ava* or *eava*, from the root of which they expreſs a liquor, which, if drank to exceſs, intoxicates like wine or diſtilled ſpirits. Here are a ſort of ſhady trees covered with a dark green foliage, bearing golden-coloured apples, which, in juicineſs and flavour, reſemble the ananas or pine-apple. One of the moſt beautiful trees in the world received here the name of *Barringtonia*; it had a great abundance of flowers larger than lilies, and perfectly white, excepting the tips of their numerous chives, which were of a deep crimſon. Such a quantity of theſe flowers were ſeen dropped off, that the ground underneath the tree was entirely covered with them. The natives called the tree *buddov*; and ſaid, that the fruit, which is a large nut, when bruiſed and mixed up with ſome ſhell-fiſh, and thrown into the ſea, intoxicates the fiſh for ſome time, ſo that they come to the ſurface of the water, and ſuffer themſelves to be taken with people's hands. Several other maritime plants in tropical climates are found to have the ſame quality. Mr Dalrymple deſcribes the method of catching fiſh with theſe plants as follows: the plant is thruſt under the coral rocks or hollows where the fiſh haunt; the effect is moſt ſenſible in ſtill water, though it is effectual in the open ſea; for the ſame gentleman ſays, he has ſeen fiſh ſoon after float on the ſurface of the water half dead, and ſome totally without life; and where the effect is leſs violent, the fiſh will be ſeen under the water to have loſt their poiſe, without coming up to the ſurface. Fiſh caught in this manner are not in the leaſt noxious or ill taſted.

5 Animals. In this iſland they have domeſtic poultry exactly reſembling thoſe of Europe: beſides which there are wild ducks; alſo beautiful green turtle doves; large pigeons of a deep blue plumage and excellent taſte; a ſmall ſort of paroquets, very ſingular on account of the various mixture of red and blue in their feathers; alſo another ſort of a greeniſh colour, with a few red ſpots; the latter are frequently tamed, and are valued on account of their red feathers. Here is a king-fiſher of a dark green, with a collar of the ſame hue round his white throat; a large cuckoo, and a blue heron. Small birds of various kinds dwell in the ſhady trees; and, contrary to the generally received opinion that birds in warm climates are not remarkable for their ſong, have a very agreeable note. There were no quadrupeds but dogs, hogs, and rats: and for theſe laſt the natives were ſaid to have a ſcrupulous regard, inſomuch that they would by no means kill them; however,

Otaheite. however, Captain Cook, in 1773, turned about 14 cats on the iſland, which have probably reduced the number of theſe vermin. No frogs, toads, ſcorpions, centipedes, or any kind of ſerpent, have been found here; the ants, however are troubleſome, but not very numerous. When the Endeavour firſt arrived here in 1769, the flies were found exceſſively troubleſome; but muſqueto nets and fly-flaps in ſome meaſure removed the inconvenience. Sydney Parkinſon, in his journal, ſays, that notwithſtanding theſe flies are ſo great a nuiſance, the natives, from a religious principle, will not kill them. But there is a ſtrange diſagreement in the accounts of different voyagers concerning this matter. For M. Bougainville ſays, "this iſland is not infeſted with thoſe myriads of troubleſome inſects that are the plague of other tropical countries." And Mr Forſter ſays, "not a gnat or muſqueto hummed unpleaſantly about us, or made us apprehenſive of its bite." This inconvenience muſt therefore be felt at certain ſeaſons of the year, and in certain diſtricts of the country, more ſenſibly than at other times and places. There is great variety of excellent fiſh; and according to Aitourou, a native who embarked with M. de Bougainville, there are ſea-ſnakes on the ſhore of Otaheite, whoſe bite is mortal.

6 Deſcription of the inhabitants, &c. The inhabitants of Otaheite are a ſtout, well-made, active, and comely people. The ſtature of the men, in general, is from five feet ſeven to five feet ten inches; the talleſt man ſeen by Captain Wallis meaſured ſix feet three inches and a half; and Captain Cook, in his ſecond voyage, deſcribes O-Too, the king of Otaheite, to be of that height. "In order to paint a Hercules or a Mars," ſays M. de Bougainville, "one could nowhere find ſuch beautiful models." They are of a pale brown complexion; in general their hair is black, and finely frizzled; they have black eyes, flat noſes, large mouths, and fine white teeth; the men wear their beards in many faſhions, all of them plucking out a great part, and have prominent bellies. Moſt of them ſmell ſtrong of the cocoa-nut oil. The women in general are much ſmaller, eſpecially thoſe of the lower rank or tawtows, which is attributed to their early and promiſcuous intercourſe with the men; whilſt the better ſort, who do not gratify their paſſions in the ſame unbridled manner, are above the middle ſtature of Europeans. Their ſkin is moſt delicately ſmooth and ſoft: they have no colour in their cheeks; their noſe is generally ſomewhat flat, but their eyes are full of expreſſion, and their teeth beautifully even and white. "The women," ſays M. de Bougainville, "have features not leſs agreeable than the generality of Europeans, and a ſymmetry of body and beautiful proportion of limbs which might vie with any of them. The complexion of the men is tawny; but thoſe who go upon the water are much more red than thoſe who live on ſhore. Some have their hair brown, red, or flaxen, in which they are exceptions to all the natives of Aſia, Africa, and America, who have their hair black univerſally; here, in the children of both ſexes, it is generally flaxen. The ſtrongeſt expreſſion is painted in the countenances of theſe people; their walk is graceful, and all their motions are performed with great vigour and eaſe." "I never beheld ſtatelier men, (ſays Sydney Parkinſon.) The men of conſequence on the iſland wear the nails of their fingers long, which they conſider as a very honourable badge of diſtinction, ſince only ſuch people as have no occaſion to work can ſuffer them to grow to that length. This Otaheite. cuſtom they have in common with the Chineſe; but the nail of the middle finger on the right hand is always kept ſhort, the meaning for which peculiarity could not be learned. Only one ſingle cripple was met with among them, and he appeared to have been maimed by a fall. The women always cut their hair ſhort round their heads. Both ſexes have a cuſtom of ſtaining their bodies, which they call *tattowing*; both men and women have the hinder part of their thighs and loins marked very thick with black lines in various forms; theſe marks are made by ſtriking the teeth of an inſtrument ſomewhat like a comb juſt through the ſkin, and rubbing into the punctures a kind of paſte made of ſoot and oil, which leaves an indelible ſtain. The boys and girls under twelve years of age are not marked; a few of the men, whoſe legs were marked in chequers by the ſame method, appeared to be perſons of ſuperior rank and authority. Mr Banks ſaw the operation of tattowing performed upon the backſide of a girl about thirteen years old. The inſtrument uſed upon this occaſion had thirty teeth; and every ſtroke, of which at leaſt a hundred were made in a minute, drew an ichor or ſerum a little tinged with blood. The girl bore it with moſt ſtoical reſolution for about a quarter of an hour; but the pain of ſo many hundred punctures as ſhe had received in that time, then became intolerable. She firſt complained in murmurs, then wept, and at laſt burſt into loud lamentations, earneſtly imploring the operator to deſiſt. He was, however, inexorable; and when ſhe began to ſtruggle, ſhe was held down by two women, who ſometimes ſoothed and ſometimes chid her; and now and then, when ſhe was moſt unruly, gave her a ſmart blow. Mr Banks ſtaid in a neighbouring houſe an hour, and the operation was not over when he went away; yet it was performed but upon one ſide, the other having been done ſome time before; and the arches upon the loins, in which they moſt pride themſelves, and which gave more pain than all the reſt, were ſtill to be done. Both men and women are not only decently but gracefully clothed, in a kind of white cloth that is made of the bark of a ſhrub, and very much reſembles coarſe China paper. Their dreſs conſiſts of two pieces of this cloth; one of them, having a hole made in the middle to put the head through, hangs from the ſhoulders to the mid-leg before and behind; another piece, which is between four and five yards long, and about one yard broad, they wrap round the body in a very eaſy manner: This cloth is not woven; but is made like paper, of the macerated fibres of the inner bark ſpread out and beaten together. Their ornaments are feathers, flowers, pieces of ſhell, and pearls; the pearls are worn chiefly by the women. In wet weather they wear matting of different kinds, as their cloth will not bear wetting. The dreſs of the better ſort of women conſiſts of three or four pieces: one piece, about two yards wide and eleven long, they wrap ſeveral times round their waiſt, ſo as to hang down like a petticoat as low as the middle of the leg; and this they call *parou*. This ſimple drapery affords the ſex an opportunity of diſplaying an elegant figure to the greateſt advantage, according to the talents and taſte of the wearer: no general faſhions force them to diſfigure inſtead of adorning themſelves, but an innate gracefulneſs is the companion of ſimplicity.

Otaheite. ſimplicity. To this cloth they give a very ſtrong perfume.

7 Of their houſes. The chief uſe which they make of their houſes is to ſleep in them; for unleſs it rains, they eat in the open air under the ſhade of a tree. Theſe houſes are no other than ſheds, all built in the wood between the ſea and the mountains; they are erected on an oblong ſquare; their width is nearly half of their length; they are nothing more than a roof, not quite four feet from the ground, raiſed on three rows of pillars, one row on each ſide, and one in the middle. The roof reſembles our thatched houſes in England, and conſiſts of two flat ſides inclining to each other. Their thatch conſiſts of palm-leaves. The floor of their dwelling is covered with hay, over which they ſpread mats. Some of theſe erections are furniſhed with a ſtool, which is appropriated ſolely to the uſe of the maſter of the family: they conſiſt of no other furniture except a few blocks of wood, which being ſquare, one ſide is hollowed into a curve; and theſe they uſe as pillows, and with their apparel they cover themſelves. In theſe open dwellings the whole family repoſe themſelves at night. The ſize of the houſe is proportioned to the number that conſtitutes the family. The eſtabliſhed order in theſe dormitories is, for the maſter and his wife to ſleep in the middle; round them the married people; in the next circle the unmarried women; and in the next, at the ſame diſtance, the unmarried men; and the ſervants at the extremity of the ſhed; but in fair weather the latter ſleep in the open air. Some few dwellings, however, conſtructed for greater privacy, are entirely incloſed with walls of reeds, connected together with tranſverſe pieces of wood, ſo as to appear ſomewhat like large bird cages cloſely lined; in theſe houſes there is commonly a hole left for the entrance, which can be cloſed up with a board.

Their candles are made of the kernels of a kind of oily nut, which they ſtick one above another in a ſkewer that is thruſt through the middle of them; the upper one being lighted burns to the ſecond, at the ſame time conſuming that part of the ſkewer that goes through it; the ſecond taking fire burns in the ſame manner down to the third, and ſo to the laſt; they burn a conſiderable time, and afford a pretty good light. The natives generally retire to reſt about an hour after it is dark.

8 Food, method of cookery. The food of the common people entirely conſiſts of vegetables. Theſe are, the bread-fruit, with bananas, plantains, yams, apples, and a four fruit, which, though not pleaſant by itſelf, gives an agreeable reliſh to roaſted bread-fruit, with which it is frequently beaten up. The fleſh, which is reſerved for the tables of the great, is either poultry, hogs, or dogs; the fleſh of their fowls is not well-taſted, but that of dogs is eſteemed by the natives beyond pork. The ſmaller fiſh are generally eaten raw, as we eat oyſters: every thing that can be procured from the ſea is made an article of their food; for they will eat not only ſea-inſects, but what the ſeamen call *blubbers*, though ſome of them are ſo tough that they are obliged to ſuffer them to become putrid before they can be chewed. A very large ſhark being caught by the Dolphin's people was given to the natives; who ſoon cut it to pieces, and carried it away with great ſatisfaction.

They kill the animals they intend for food by ſuffocating them, which is done by ſtopping the mouth and noſe with their hands; they then ſinge off the hair, by holding the animal over a fire, and ſcraping him with a ſhell: with this inſtrument they cut him up, and take out the entrails; which are waſhed, and put into cocoa-nut ſhells, together with the blood. Dogs are eaten that are fed wholly upon bread-fruit, cocoa-nuts, yams, and other vegetables, and are never ſuffered to taſte any animal food; and thoſe who have taſted the fleſh of a dog thus fed, have declared it to be little inferior to Engliſh lamb. In order to dreſs their food, they kindle a fire, by rubbing the end of one piece of dry wood upon the ſide of another, in the ſame manner as a carpenter with us whets a chiſel. They then dig a pit about half a foot deep, and two or three yards in circumference; they pave the bottom with large pebble ſtones, which they lay down very ſmooth and even, and then kindle a fire in it with dry wood, leaves, and the huſks of cocoa-nuts. When the ſtones are ſufficiently heated, they take out the embers, and rake up the aſhes on every ſide; they then cover the ſtones with a layer of green cocoa-nut leaves, and wrap up the animal that is to be dreſſed in the leaves of the plantain. If it is a ſmall hog, they wrap it up whole; if a large one, they ſplit it. When it is placed in the pit, they cover it with the hot embers, and lay upon them bread-fruit and yams, which are alſo wrapped up in the leaves of plantain. Over theſe they ſpread the remainder of the embers, mixing among them ſome of the hot ſtones, with more cocoa-nut tree leaves upon them, and then cloſe up all with earth, ſo that the heat is kept in; the oven is kept thus cloſed a longer or ſhorter time according to the ſize of the meat that is dreſſed. The meat, when taken out, is ſaid to be better dreſſed than any other way. They uſe ſhells for knives; and carve very dexterouſly with them, always cutting from themſelves. One of the principal attendants on Oberea, attempting the uſe of the knife and fork, could not feed himſelf therewith; but by the mere force of habit, his hand came to his mouth, and the victuals at the end of his fork went away to his ear. Otaheite.

They are quite unacquainted with the method of boiling water, as they leave no veſſels among them that will bear the fire. Whilſt the noble Oberea was one morning at breakfaſt with Captain Wallis on board the Dolphin, the ſurgeon filled the tea-pot by turning the cock of a vaſe that ſtood upon the table. One of the lady's attendants obſerved this practice very attentively, and ſoon after turning the cock himſelf, received the water upon his hand; he no ſooner felt himſelf ſcalded, than he roared and danced about in an extravagant manner. The other Indians, unappriſed of the cauſe of theſe emotions, ſtood gazing at him in amazement, and not without ſome mixture of terror: but the gentlemen in company, who ſoon perceived the cauſe of the outcry, diſpelled the apprehenſions of their viſitants; and ſome ointment being applied to the ſcald, good humour and confidence were again reſtored. The gunner of the ſhip, who was appointed comptroller of the market which was eſtabliſhed on ſhore with the natives, uſed to dine on the ſpot; the aſtoniſhment of theſe people was very great to ſee him dreſs his pork and poultry in a pot; at length an old man, who was extremely ſerviceable in bringing down proviſions to be exchanged, was put into poſſeſſion of an iron pot, and from that

time

Otaheite. time he and his friends ate boiled meat every day. Several iron pots were likewiſe given to Oberea and ſome of the chiefs; which were in conſtant uſe, and drew every body to ſee them; but although the particulars of two ſucceſſive voyages of Captain Cook to this iſland are circumſtantially related, we hear no more of this improvement in the culinary art, or of the further aſſiſtance which has been rendered thoſe people in ſupplying them with pots for boiling; but however deſirous the natives might be to eat boiled meat, it was not adviſeable to have ſuch an article of barter as iron kettles, when a few ſpike nails, or a common hatchet, would procure one of their largeſt hogs.

Salt water is the uſual ſauce to their food; thoſe who live near the ſea have it furniſhed as it is wanted, others at a diſtance keep it in large bamboos. The kernels of the cocoa-nuts furniſh them with another ſauce: theſe, made into a paſte ſomething of the conſiſtence of butter, are beat up with ſalt water, which has a very ſtrong flavour; but though at firſt it ſeemed very nauſeous, yet when the taſte became familiar, it was much reliſhed.

Their general drink is water, or the milk of the cocoa-nut. They ſhowed in general an averſion to ſtrong liquors; and whenever any one of them happened to drink ſo freely with any of the ſhip's company as to be intoxicated, he reſolutely refuſed to taſte any thing that was likely to produce the ſame effect again; but they have a plant which they call *ava ava*, from the root of which they procure a liquor which has an inebriating quality. Their manner of preparing this ſtrong drink is as ſimple as it is diſguſting to an European. Several of the people take ſome of the root, and chew it till it is ſoft and pulpy; they then ſpit it out into a platter or other veſſel, every one into the ſame: into this general receptacle water is poured according to the quantity prepared. The juice thus diluted is ſtrained through ſome fibrous ſtuff like fine ſhavings, after which it is fit for drinking, and it is always prepared for preſent uſe: it has a pepperiſh taſte; drinks flat, and rather inſipid; and though it intoxicates, yet Captain Cook ſaw but one inſtance where it had that effect, as the natives generally drink it with great moderation, and but little at a time. Sometimes they chew this root as Europeans do tobacco, and ſometimes they will eat it wholly.

They eat alone, or at leaſt only in company with a gueſt that happens to call in; and the men and women never ſit down together to a meal: the ſhade of a ſpreading tree ſerves them for a parlour; broad leaves ſpread in great abundance ſerve for a table-cloth; and if a perſon of rank, he is attended by a number of ſervants who ſeat themſelves round him: before he begins his meal, he waſhes his mouth and hands very clean, and repeats this ſeveral times whilſt he is eating. The quantity of food which theſe people eat at a meal is prodigious. Captain Cook ſays, he has ſeen one man devour two or three fiſhes as big as a pearch; three bread-fruits, each bigger than two fiſts; 14 or 15 plantains, or bananas, each ſix or ſeven inches long and four or five round, and near a quart of the pounded bread-fruit. Men of rank are conſtantly fed by their women; and one of the chiefs who dined on board the ſhips in 1769, ſhowed ſuch reluctance to feed himſelf, that one of the ſervants was obliged to feed him to prevent his returning without his meal. In one of the excurſions which the Otaheite. gentlemen of the ſhips made into the country in 1773, they arrived at a neat houſe, where a very fat man, who ſeemed to be a chief of the diſtrict, was lolling on his wooden pillow; before him two ſervants were preparing his deſſert, by beating up with water ſome bread-fruit and bananas in a large wooden bowl, and mixing with it a quantity of fermented ſour paſte called *mahie*. While this was doing, a woman, who ſat down near him, crammed down his throat by handfuls the remains of a large baked fiſh, and ſeveral bread-fruits, which he ſwallowed with a voracious appetite: his countenance was the picture of phlegmatic inſenſibility, and ſeemed to teſtify that all his thoughts centered in the gratification of his appetite. He ſcarce deigned to look at the ſtrangers; and a few monoſyllables which he uttered, were extorted from him to remind his feeders of their duty, when by gazing at them they grew leſs attentive to him.

That theſe people, who are remarkably fond of ſociety, and particularly that of their women, ſhould exclude its pleaſures from the table, where, among all other nations, whether civil or ſavage, they have been principally enjoyed, is truly inexplicable. How a meal, which everywhere elſe brings families and friends together, comes to ſeparate them here, was a ſingularity much inquired about, but never accounted for. "They ate alone (they ſaid), becauſe it was right;" but why it was right to eat alone, they never attempted to explain. Such, however, was the force of habit in this inſtance, as it is in every other, that they expreſſed the ſtrongeſt diſlike, and even diſguſt, at their viſitants eating in ſociety, eſpecially with women, and of the ſame victuals. "At firſt (ſays Captain Cook) we thought this ſtrange ſingularity aroſe from ſome ſuperſtitious opinion; but they conſtantly affirmed the contrary. We obſerved alſo ſome caprices in the cuſtom, for which we could as little account as the cuſtom itſelf. We could never prevail with any of the women to partake of the victuals at our table, when we were dining in company; yet they would go five or ſix together into the ſervants apartments, and there eat very heartily of whatever they could find: nor were they in the leaſt diſconcerted if we came in while they were doing it. When any of us have been alone with a woman, ſhe has ſometimes eaten in our company; but then ſhe has expreſſed the great unwillingneſs that it ſhould be known, and always extorted the ſtrongeſt promiſes of ſecrecy. Among themſelves, even two brothers and two ſiſters have each their ſeparate baſkets of proviſions, and the apparatus of their meal. When they firſt viſited us at our tents, each brought his baſket with him; and when we ſat down to table, they would go out, ſit down upon the ground, at two or three yards diſtance from each other, and turning their faces different ways take their repaſt without exchanging a ſingle word. The women not only abſtain from eating with the men, and of the ſame victuals, but even have their victuals ſeparately prepared by boys kept for that purpoſe, who depoſit it in a ſeparate ſhed, and attend them with it at their meals. But though they would not eat with us, or with each other, they have often aſked us to eat with them, when we have viſited thoſe with whom we were particularly acquainted at their houſes; and we have often upon ſuch

Otaheite. such occaſions eaten out of the ſame baſket, and drank out of the ſame cup. The elder women, however, always appeared offended at this liberty; and if we happened to touch their victuals, or even the baſket that contained it, they would throw it away."

After meals, and in the heat of the day, the middle-aged people of the better ſort generally ſleep. They are indeed extremely indolent; and ſleeping and eating are almoſt all that they do. Thoſe that are older are leſs drowſy, and the boys and girls are kept awake by the natural activity and ſprightlineſs of their age.

9 Diſeaſes. Theſe iſlanders, who inhabit huts expoſed to all the winds, and hardly cover the earth, which ſerves them for a bed, with a layer of leaves, are remarkably healthy and vigorous, and live to an old age without enduring any of its infirmities; their ſenſes are acute, and they retain their beautiful teeth to the laſt. M. de Bougainville deſcribes an old man, whom they ſaw on their landing, who had no other character of old age, than that reſpectable one which is imprinted on a fine figure. His head was adorned with white hair, and a long white beard; all his body was nervous and fleſhy; he had neither wrinkles, nor ſhowed any other tokens of decrepitude. This venerable man ſeemed diſpleaſed at the arrival of theſe ſtrangers; he even retired without making any returns to the courteſies they paid to him; but he gave no ſigns either of fear, aſtoniſhment, or curioſity: very far from taking any part in the raptures which the multitude expreſſed, his thoughtful and ſuſpicious air ſeemed to indicate, that he feared the arrival of a new race of men would interrupt the happineſs he had ſo long enjoyed. From whence it may be inferred, that his mind was not a whit more impaired than his body. There are, however, ſeveral ſorts of leprous complaints on this iſland, which appear in cutaneous eruptions of the ſcaly kind; ſome were ſeen that had ulcers upon different parts of their bodies; yet they ſeemed little regarded by thoſe who were afflicted with them, and no application whatever was uſed to them, not ſo much as to keep off the flies. But inſtances of them are rare, as the excellency of their climate, and the ſimplicity of their vegetable food, prevent almoſt all dangerous and deadly diſorders. They are ſometimes afflicted with the cholic, and coughs are not unknown among them; and the chiefs, who fare more ſumptuouſly, as a puniſhment for their voluptuouſneſs are ſometimes attacked with a diſorder ſimilar to the gout, in which the legs are ſwelled and exceſſively painful. M. de Bougainville's ſurgeon aſſured him, that he had ſeen many with marks of the ſmallpox.

The uſual method employed here to reſtore the ſick to health, is by pronouncing a ſet form of words; after which the exorciſt applies the leaves of the cocoa-tree plaited to the fingers and toes of the ſick; ſo that nature is left to conflict with the diſeaſe, without being aſſiſted with any ſalutary application of art. But though they ſeem utterly deſtitute of medical knowledge, they appear to be no inconſiderable proficients in ſurgery, which they had an opportunity of proving while the Dolphin lay here. One of the ſeamen, when on ſhore ran a large ſplinter into his foot; and the ſurgeon not being at hand, one of his comrades endeavoured to take it out with a pen-knife: but after putting the poor fellow to a great deal of pain, he was obliged to give it over: an old native, who had been very active and ſucceſsful in eſtabliſhing a good underſtanding between the ſhip's company and his countrymen, happening to be preſent, called a man from the other ſide of the river, who having examined the lacerated foot, fetched a ſhell from the beach, which he broke to a point with his teeth; with which inſtrument he laid open the wound, and extracted the ſplinter. Whilſt this operation was performing, the old man went a little way into the wood, and returned with ſome gum, which he applied to the wound upon a piece of the cloth that was wrapped round him, and in two days time it was perfectly healed. This gum was produced by the apple-tree; the ſurgeon of the ſhip procured ſome of it, and uſed it as a vulnerary balſam with great ſucceſs. Captain Cook, in 1769, ſaw many of the natives with dreadful ſcars; one man, in particular, whoſe face was almoſt entirely deſtroyed; his noſe, including bone, was perfectly flat; and one cheek and one eye were ſo beaten in, that the hollow would almoſt receive a man's fiſt; yet no one ulcer remained. Otaheite.

The venereal diſeaſe is ſaid to have been entailed upon theſe people by the crew of M. de Bougainville's ſhips, who viſited this iſland a ſhort time after Captain Wallis had left it. In 1769, more than one-half of the crew in Captain Cook's ſhip had contracted it, during a month's ſtay here. The natives diſtinguiſhed it by a name of the ſame import with rottenneſs, but of a more extenſive ſignification. They deſcribed, in the moſt pathetic terms, the ſufferings which the firſt victims to its rage endured; and told him that it cauſed the hair and the nails to fall off, and the fleſh to rot from the bones; that it ſpread an univerſal terror and conſternation among the inhabitants, ſo that the ſick were abandoned by their neareſt relations, leſt the calamity ſhould ſpread by contagion, and were left to periſh alone in ſuch miſery as till then had never been known among them. But there ſeems to be ſome reaſon to hope that they had found out a ſpecific cure for it, as none were ſeen on whom it had made a great progreſs; and one who went from the ſhip infected, returned, after a ſhort time, in perfect health. Both Captain Cook and Mr Forſter, in their relations of their voyage in the Reſolution, endeavour to eſtabliſh the opinion, that this ſcourge of licentiouſneſs was felt in the South ſea iſlands previous to any of the modern voyages that have been made thither, and that it was an indigenous diſeaſe there. But if that concluſion be well founded, how comes it, that at all the places where the Reſolution touched in 1773, which had before been viſited by the Endeavour in 1769, ſuch as New Zealand for inſtance, the crew, more or leſs, became infected by their commerce with the women, and not at all ſo at places which they viſited, for the firſt time, in the Reſolution?

10 Manufactures. The principal manufactures among the Otaheiteans is their cloth. This is made of the bark of trees, which are of three kinds, viz. the Chineſe mulberry-tree, or *aouta*; the bread-fruit tree, or *ooroo*; and one that is deſcribed by Dr Hawkeſworth as reſembling the wild fig tree of the Weſt Indies. Of all theſe the paper mulberry affords the beſt cloth; what is made from that being both finer, ſofter, whiter, and better ſuited to take a colour; the *ooroo* produces cloth much inferior in contexture; and the laſt is very coarſe, in

Otaheite. colour reſembling the darkeſt brown paper; but this laſt is the only kind that withſtands water: (See the article BARK.)—They likewiſe prepare a red dye; which is made by mixing the yellow juice of a ſmall ſpecies of fig, which the natives call *mattee*, with the greeniſh juice of a ſort of fern or bindweed, or of ſeveral other plants, which produce a bright crimſon: and this the women rub with their hands, if the piece is to be uniformly of a colour; or they make uſe of a bamboo reed if the piece is to be marked or ſprinkled into different patterns. The colour fades very ſoon, and becomes of a dirty red; but notwithſtanding this defect, and its being liable to be ſpoiled by rain, the cloth thus ſtained is highly valued, and is worn only by the principal inhabitants of the country. The inhabitants perfume their clothes with certain plants; concerning which, Mr Forſter made all poſſible inquiry. Tahea, a friendly native, ſhowed him ſeveral plants which are ſometimes uſed as ſubſtitutes; but the moſt precious ſort, he either could not, or would not, point out: and from the account of Omai it appears that there are no leſs than 14 different ſorts of plants employed for this purpoſe.

Matting is another Otaheitean manufacture: and in this they are ſo dexterous, that they produce finer mats than any made in Europe. Ruſhes, graſs, the bark of trees, and the leaves of a plant called *wharrou*, are the materials which they work up for this purpoſe. Their matting is applied to various uſes: the coarſer kind is employed for ſleeping on in the night, or ſitting on through the day; the finer ſort is converted into garments in rainy weather, their cloth being ſoon penetrated by wet. They are very dexterous in making baſket and wicker-work: their baſkets are of a vaſt number of different patterns, many of them exceedingly neat; and the making them is an art practiſed by every one, both men and women.

Inſtead of hemp, they make ropes and lines of the bark of a tree; and thus they are provided with fiſhing nets; the fibres of the cocoa-nut furniſh them with thread, with which they faſten the different parts of their canoes, &c. The bark of a nettle which grows in the mountains, and is called *orawa*, ſupplies them with excellent fiſhing lines, capable of holding any kind of fiſh; and their hooks are made of mother-of-pearl, to which they fix a tuft of hair, made to reſemble the tail of a fiſh. Inſtead of making them bearded, the point is turned inwards. They make alſo a kind of ſeine of a coarſe broad graſs, the blades of which are like flags. Theſe they twiſt and tie together in a looſe manner, till the net, which is about as wide as a large ſack, is from 60 to 80 fathoms long. This they haul in ſmooth ſhoal water; and its own weight keeps it ſo cloſe to the ground, that ſcarely a ſingle fiſh can eſcape. They make harpoons of cane, and point them with hard wood; with which they can ſtrike fiſh more effectually than an European can with one headed with iron.

11 Working tools. The tools uſed by the Otaheiteans for all their purpoſes are, an adze made of ſtone; a chiſel or gouge made of bone, generally the bone of a man's arm between the wriſt and elbow; a raſp of coral, and the ſkin of a ſting-ray; alſo coral and ſand, as a file or poliſher: and with theſe they fell timber, cleave and poliſh it, and hew ſtone. The ſtone which makes the blade of their adzes is a kind of baſaltes, of a gray or blackiſh colour, not very hard, but of conſiderable toughneſs; they are formed of different ſizes; ſome that are intended for felling, weigh from ſix to eight pounds; others that are uſed for carving, not more than as many ounces: but it is neceſſary to ſharpen theſe rude tools almoſt every minute; for which purpoſe a cocoa-nut ſhell full of water and a ſtone are always at hand. With ſuch tools they generally take up ſeveral days in felling a tree; but after it is down, and ſplit into planks, they ſmooth them very dexterouſly and expeditiouſly with their adzes, and can take off a thin coat from a whole plank without miſſing a ſtroke. Otaheite.

12 Weapons. Their weapons are ſlings, which they uſe with great dexterity; pikes headed with the ſkins of ſting-rays; and clubs of about ſix or ſeven feet long, made of a very hard wood. Thus armed, they are ſaid to fight with great obſtinacy; and to give no quarter to man, woman, or child, who happens to fall into their hands during the battle, nor for ſome time afterwards, till their paſſion ſubſides. They have likewiſe bows and arrows; but the arrows are good for nothing except to bring down a bird, being headed only with ſtone, and none of them pointed. They have targets of a ſemicircular form, made of wicker-work, and plaited ſtrings of the cocoa-nut fibres, covered with gloſſy, bluiſh-green feathers belonging to a kind of pigeon, and ornamented with many ſhark's teeth, arranged in three concentric circles.

13 Canoes. Their boats or canoes are of three different ſorts. Some are made out of a ſingle tree, and hold from two to ſix men. Theſe are principally employed in fiſhing: the others are conſtructed of planks very dexterouſly ſewed together; they are of different ſizes, and will hold from 10 to 40 men: they generally laſh two of theſe together, and ſet up two maſts between them; or if they are ſingle, they have an on-trigger on one ſide, and only one maſt in the middle; and in theſe veſſels they will ſail far beyond the ſight of land. The third ſort ſeems to be principally deſigned for pleaſure or ſhew. Theſe are very large, but have no ſail; and in ſhape reſemble the gondolas of Venice. The middle is covered with a large awning; and ſome of the people ſit upon it, and ſome under it. The plank of which theſe veſſels are conſtructed, is made by ſplitting a tree, with the grain, into as many thin pieces as poſſible. The boards are brought to the thickneſs of about an inch, and are afterwards fitted to the boat with the ſame exactneſs that might be expected from an expert joiner. To faſten theſe planks together, holes are bored with a piece of bone, fixed into a ſtick for that purpoſe. Through theſe holes a kind of plaited cordage is paſſed, ſo as to hold the planks ſtrongly together. The ſeams are caulked with dry ruſhes; and the whole outſide of the veſſel is painted over with a kind of gummy juice, which ſupplies the place of pitch.

14 Characters, manners, &c. The Otaheiteans are a very induſtrious people, and friendly in their diſpoſitions; but like all other nations not fully civilized, their paſſions are extremely violent, and they are very fickle. The manner of ſingling out a man here for a choſen friend is by taking off a part of your clothing and putting it upon him. Their uſual manner of expreſſing their reſpect to ſtrangers, or

their

Otaheite. their ſuperiors, at a firſt meeting, is by uncovering themſelves to the middle. They have a cuſtom of ſaluting thoſe who ſneeze, by ſaying *evaroeia-t-eatoua*, "May the good eatoua awaken you," or "May not the evil eatoua lull you aſleep!"

Their propenſity to theft is very great, inſomuch, that M. Bougainville ſays, "even in Europe itſelf one cannot ſee more expert filchers than the people of this country;" and indeed, in all the voyages made by Captain Cook and others, they had abundant experience of this diſpoſition of the natives, which often produced quarrels, and ſometimes even fatal effects. In their behaviour they are extremely laſcivious, almoſt beyond credibility. A woman of diſtinction who viſited Mr Banks, uſed the following ceremony on her firſt approach to the ſtranger. After laying down ſeveral young plantain leaves, a man brought a large bundle of cloth; which having opened, he ſpread it piece by piece on the ground, in the ſpace between Mr Banks and his viſitants. There were in all nine pieces: having ſpread three pieces one upon another, the lady came forward, and, ſtepping upon them, took up her garments all around her to her waiſt; ſhe then turned three times round, after which ſhe dropped the veil: when other three pieces were ſpread, ſhe practiſed the ſame ceremony; and ſo the third time, when the laſt three pieces were laid out; after which the cloth was again rolled up, and delivered to Mr Banks as a preſent from the lady, who with her attending friend came up and ſaluted him. From the unbridled licentiouſneſs of theſe people, the French gave this iſland the name of the *New Cythera*. Nay, to ſuch a degree do they carry their libidinous exceſſes, that a number of the principal people, it is related, have formed themſelves into a ſociety, in which every woman is common to every man. This ſociety is diſtinguiſhed by the name of *Arreoy*, the members of which have meetings from which all others are excluded. At theſe meetings the paſſions are excited by a ſtudied courſe of ſenſuality, and the coarſeſt and moſt brutal pleaſures are enjoyed by the whole company. If, however, notwithſtanding theſe exceſſes, any of the female members of this community ſhould prove with child, unleſs ſhe can procure ſome man to adopt the child as his own, not all the ſtrong affections of a mother, if ſuch are not entirely eradicated by a courſe of life ſubverſive of the feelings as well as the modeſty of nature, can ſave the life of the precondemned innocent; but the child as ſoon as born is ſmothered, and the mother is left at liberty to renew her former courſe of execrable proſtitution. Should any man be found to cooperate with a woman in ſaving the life of a child, they are both excluded for ever from the *arreoy*, and are conſidered as man and wife. The woman from that time is diſtinguiſhed by the term *whannow-now*, "the bearer of children;" which in this part of the world only is conſidered as a term of reproach; and ſo depraved are thoſe people, that being a member of ſuch a ſociety is boaſted of as being a privilege, inſtead of being ſtigmatized as the foulеſt crime. The arreoys enjoy ſeveral privileges, and are greatly reſpected throughout the Society Iſlands, as well as at Otaheite; nay, they claim a great ſhare of honour from the circumſtance of being childleſs. Tupia, one of the moſt intelligent natives, when he heard that the king of England had a numerous offſpring, declared that he thought himſelf much greater, becauſe he belonged to the arreoys. That this ſociety indulge themſelves in promiſcuous embraces, and that every woman is common to every man, is contradicted by Mr Forſter. He ſays, that theſe arreoys chooſe their wives and miſtreſſes from among the proſtitutes; and from this circumſtance, as well as their extreme voluptuouſneſs, they have ſeldom any reaſon to dread the intruſion of children. He had the following circumſtances related to him by Omi or Omiah, one of the natives, who was brought to England. He ſaid, that the pre-eminence and advantages which a man enjoyed as arreoy were ſo valuable as to urge him againſt his own feelings to deſtroy his child; that the mother was never willing to conſent to the murder; but that her huſband and other arreoys perſuaded her to yield up the child; and that where entreaties were not ſufficient, force was ſometimes made uſe of. But, above all, he added, that this action was always perpetrated in ſecret; inſomuch, that not even the *totows* or attendants of the houſe were preſent; becauſe, if it were ſeen, the murderers would be put to death. Otaheite.

Both men and women conſtantly waſh their whole bodies three times a-day in running water, and are remarkably cleanly in their clothes. They are moſt expert ſwimmers, being accuſtomed to the water from their infancy. Captain Cook relates the following remarkable inſtance of their expertneſs. On a part of the ſhore where a tremendouſly high ſurf broke, inſomuch that no European boat could live in it, and the beſt European ſwimmer, he was perſuaded, would have been drowned, as the ſhore was covered with pebbles and large ſtones, yet here were 10 or 12 Indians ſwimming for their amuſement. Whenever a ſurf broke near them, they dived under it, and roſe again on the other ſide. The ſtern of an old canoe added much to their ſport. This they took out before them, and ſwam with it as far as the outermoſt breach; when two or three getting into it, and turning the ſquare end to the breaking wave, were driven in towards the ſhore with incredible rapidity, ſometimes almoſt to the beach; but generally the wave broke over them before they got half way; in which caſe they dived, and roſe to the other ſide with the canoe in their hands, and ſwimming out with it again, were again driven back. This amazing expertneſs drew the Captain's attention for more than half an hour; during which time none of the ſwimmers attempted to come aſhore, but ſeemed to enjoy the ſport in the higheſt degree. At another time, one of the officers of the quarter-deck intending to drop a bead into a canoe for a little boy of ſix years of age, it accidentally miſſed the boat, and fell into the ſea; but the child immediately leaped overboard, dived after it, and recovered it. To reward him for this feat, ſome more beads were dropped to him; which excited a number of men and women to amuſe the officers with their amazing feats of agility in the water, and not only fetched up ſeveral beads ſcattered at once, but likewiſe large nails, which, from their weight, deſcended quickly to a conſiderable depth. Some of theſe people continued a conſiderable time under water; and the velocity with which they were ſeen to go down, the water being extremely clear, was very ſurpriſing. Here a green branch of a tree is uſed as an emblem of peace,

Otaheite

in exact conformity to the cuſtom of the ancient nations. We ſhall add an extract here from Captain Cook's laſt voyage to the Pacific ocean.

" Nothing could make a ſtronger impreſſion at firſt ſight, on our arrival here, than the remarkable contraſt between the robuſt make and dark colour of the people of Tongataboo *, and a ſort of delicacy and whiteneſs which diſtinguiſh the inhabitants of Otaheite. It was even ſome time before that difference could preponderate in favour of the Otaheiteans; and then only, perhaps, becauſe we became accuſtomed to them, the marks which had recommended the others began to be forgotten. Their women, however, ſtruck us as ſuperior in every reſpect; and as poſſeſſing all thoſe delicate characteriſtics which diſtinguiſh them from the other ſex in many countries. The beard which the men here wear long, and the hair, which is not cut ſo ſhort as is the faſhion at Tongataboo, made alſo a great difference; and we cannot help thinking, that on every occaſion they ſhowed a greater degree of timidity and fickleneſs. The muſcular appearance, ſo common amongſt the Friendly iſlanders, and which ſeems a conſequence of their being accuſtomed to much action, is loſt here, where the ſuperior fertility of their country enables the inhabitants to lead a more indolent life; and its place is ſupplied by a plumpneſs and ſmoothneſs of the ſkin; which, though perhaps more conſonant with our ideas of beauty, is no real advantage, as it ſeems attended with a kind of languor in all their motions, not obſervable in the others. This obſervation is fully verified in their boxing and wreſtling, which may be called little better than the feeble efforts of children, if compared to the vigour with which theſe exerciſes are performed at the Friendly iſlands.

* One of the Friendly iſlands.

" Perſonal endowments being in great eſteem amongſt them, they have recourſe to ſeveral methods of improving them, according to their notions of beauty. In particular, it is a practice, eſpecially amongſt the *arreoy*, or unmarried men of ſome conſequence, to undergo a kind of phyſical operation, to render them fair. This is done by remaining a month or two in the houſe; during which time they wear a great quantity of clothes, eat nothing but bread-fruit, to which they aſcribe a remarkable property in whitening them. They alſo ſpeak, as if their corpulence and colour, at other times, depended upon their food; as they are obliged, from the change of ſeaſons, to uſe different ſorts at different times.

" The graceful air and firm ſtep with which theſe people walk are not the leaſt obvious proof of their perſonal accompliſhments. They conſider this as a thing ſo natural, or ſo neceſſary to be acquired, that nothing uſed to excite their laughter ſooner, than to ſee us frequently ſtumbling upon the roots of trees, or other inequalities of the ground.

" Their countenances very remarkably expreſs the abundant mildneſs or good nature which they poſſeſs, and are entirely free from that ſavage keenneſs which marks nations in a barbarous ſtate. One would, indeed, be apt to fancy that they had been bred up under the ſevereſt reſtrictions to acquire an aſpect ſo ſettled, and ſuch a command of their paſſions, as well as ſteadineſs in conduct. But they are at the ſame time frank, cheerful, and good-humoured, though ſometimes, in the preſence of their chiefs, they put on a degree of gravity, and ſuch a ſerious air, as becomes ſtiff and awkward, and has an appearance of reſerve. Otaheite.

" Their peaceable diſpoſition is ſufficiently evinced from the friendly reception all ſtrangers have met with who have viſited them. Inſtead of offering to attack them openly or clandeſtinely, as has been the caſe with moſt of the inhabitants of theſe ſeas, they have never appeared in the ſmalleſt degree hoſtile, but on the contrary, like the moſt civilized people, have courted an intercourſe with their viſitors by bartering, which is the only medium that unites all nations in a ſort of friendſhip. They underſtand barter (which they call *fukkatou*) ſo perfectly, that at firſt we imagined they might have acquired the knowledge of it by commercial intercourſe with the neighbouring iſlands; but we were afterwards aſſured, that they had little or no traffic except with Feejee, from which they get the red feathers, and ſome few other articles which they eſteem. Perhaps no nation in the world traffic with more honeſty, and leſs diſtruſt. We could always ſafely permit them to examine our goods, and to hand them about one to another; and they put the ſame confidence in us. If either party repented of the bargain, the goods were re-exchanged with mutual conſent and good humour. Upon the whole, they ſeem poſſeſſed of many of the moſt excellent qualities that adorn the human mind, ſuch as induſtry, ingenuity, perſeverance, affability, and perhaps other virtues which our ſhort ſtay with them might prevent our obſerving.

" The only defect ſullying their character that we know of is their propenſity to thieving, to which we found thoſe of all ages and both ſexes addicted, and to an uncommon degree. It ſhould, however, be conſidered, that this exceptionable part of their conduct ſeemed to exiſt merely with reſpect to us; for in their general intercourſe with one another, I had reaſon to be of opinion, that theſts do not happen more frequently (perhaps leſs ſo) than in other countries, the diſhoneſt practices of whoſe worthleſs individuals are not ſuppoſed to authorize any indiſcriminate cenſure on the whole body of the people. Great allowances ſhould be made for the foibles of theſe poor natives of the Pacific ocean, whoſe minds we overpowered with the glare of objects, equally new to them as they were captivating. Stealing, amongſt the civilized and enlightened nations of the world, may well be conſidered as denoting a character deeply ſtained with moral turpitude, with avarice unreſtrained by the known rules of right, and with profligacy producing extreme indigence, and neglecting the means of relieving it. But at the Friendly and other iſlands which we viſited, the theſts ſo frequently committed by the natives, of what we had brought along with us, may be fairly traced to leſs culpable motives. They ſeemed to ariſe ſolely from an intenſe curioſity or deſire to poſſeſs ſomething which they had not been accuſtomed to before, and belonging to a ſort of people ſo different from themſelves. And, perhaps, if it were poſſible that a ſet of beings ſeemingly as ſuperior in our judgement as we are in theirs ſhould appear amongſt us, it might be doubted, whether our natural regard to juſtice would be able to reſtrain many from falling into the ſame error. That I have aſſigned the true motive for their propenſity to this practice, appears from their ſtealing every thing indiſcriminately at firſt

ſight,

Otaheite. fight, before they could have the leaſt conception of converting their prize to any one uſeful purpoſe. But I believe, with us, no perſon would forfeit his reputation, or expoſe himſelf to puniſhment, without knowing before-hand how to employ the ſtolen goods. Upon the whole, the pilfering diſpoſition of theſe iſlanders, though certainly diſagreeable and troubleſome to ſtrangers, was the means of affording us ſome information as to the quickneſs of their intellects. For their ſmall thefts were committed with much dexterity; and thoſe of greater conſequence with a plan or ſcheme ſuited to the importance of the objects. An extraordinary inſtance of the laſt ſort was, in their attempts to carry away one of the Diſcovery's anchors at mid-day.

Their common diet is made up of at leaſt nine-tenths of vegetable food; and I believe more particularly the *mahee*, or fermented bread-fruit, which makes part almoſt of every meal, has a remarkable effect upon them, preventing a coſtive habit, and producing a very ſenſible coolneſs about them, which could not be perceived in us who fed on animal food. And it is, perhaps, owing to this temperate courſe of life that they have ſo few diſeaſes among them. See N° 8.

"They only reckon five or ſix which might be called chronic or national diſorders; amongſt which are the dropſy, and the *feſai*, or indolent ſwellings before mentioned, as frequent at Tongataboo. But this was before the arrival of the Europeans; for we have added to this ſhort catalogue a diſeaſe which abundantly ſupplies the place of all the others, and is now almoſt univerſal. For this they ſeem to have no effectual remedy. The prieſts, indeed, ſometimes give them a medley of ſimples, but they own that it never cures them. And yet they allow that in a few caſes nature, without the aſſiſtance of a phyſician, exterminates the poiſon of this fatal diſeaſe, and a perfect recovery is produced. They ſay, that if a man is infected with it he will often communicate it to others in the ſame houſe, by feeding out of the ſame utenſils, or handling them, and that, in this caſe, they frequently die, while he recovers; though we ſee no reaſon why this ſhould happen. See N° 9.

"Their behaviour on all occaſions ſeems to indicate a great openneſs and generoſity of diſpoſition. Omai, indeed, who, as their countryman, ſhould be ſuppoſed rather willing to conceal any of their defects, has often ſaid that they are ſometimes cruel in puniſhing their enemies. According to his repreſentation, they torment them very deliberately; at one time tearing out ſmall pieces of fleſh from different parts; at another taking out the eyes; then cutting off the noſe; and laſtly, killing them by opening the belly. But this only happens on particular occaſions. If cheerfulneſs argues a conſcious innocence, one would ſuppoſe that their life is ſeldom ſullied by crimes. This, however, I rather impute to their feelings, which, though lively, ſeem in no caſe permanent; for I never ſaw them in any misfortune labour under the appearance of anxiety after the critical moment was paſt. Neither does care ever ſeem to wrinkle their brow. On the contrary, even the approach of death does not appear to alter their uſual vivacity. I have ſeen them when brought to the brink of the grave by diſeaſe, and when preparing to go to battle; but in neither caſe ever obſerved their countenances overclouded with melancholy or ſerious reflection. Such a diſpoſition leads them to direct all their aims only to what can give them pleaſure and eaſe. Their amuſe- Otaheite.
ments all tend to excite and continue their amorous paſſions; and their ſongs, of which they are immoderately fond, anſwer the ſame purpoſe. But as a conſtant ſucceſſion of ſenſual enjoyments muſt cloy, we found that they frequently varied them to more refined ſubjects, and had much pleaſure in chanting their triumphs in war, and their occupations in peace; their travels to other iſlands and adventures there; and the peculiar beauties, and ſuperior advantages of their own iſland over the reſt, or of different parts of it over other leſs favourite diſtricts. This marks that they receive great delight from muſic; and though they rather expreſſed a diſlike to our complicated compoſitions, yet were they always delighted with the more melodious ſounds produced ſingly on our inſtruments, as approaching nearer to the ſimplicity of their own. Neither are they ſtrangers to the ſoothing effects produced by particular ſorts of motion, which in ſome caſes ſeem to allay any perturbation of mind with as much ſucceſs as muſic. Of this I met with a remarkable inſtance. For, on walking one day about Matavai Point, where our tents were erected, I ſaw a man paddling in a ſmall canoe ſo quickly, and looking about with ſuch eagerneſs on each ſide, as to command all my attention. At firſt I imagined that he had ſtolen ſomething from one of the ſhips, and was purſued; but on waiting patiently ſaw him repeat his amuſement. He went out from the ſhore till he was near the place where the ſwell begins to take its riſe; and, watching its firſt motion very attentively, paddled before it with great quickneſs till he found that it overtook him, and had acquired ſufficient force to carry his canoe before it, without paſſing underneath. He then ſat motionleſs, and was carried along at the ſame ſwift rate as the wave, till it landed him upon the beach. Then he ſtarted out, emptied his canoe, and went in ſearch of another ſwell. I could not help concluding, that this man felt the moſt ſupreme pleaſure, while he was driven on ſo faſt and ſo ſmoothly by the ſea; eſpecially as, though the tents and ſhips were ſo near, he did not ſeem in the leaſt to envy, or even to take any notice of, the crowds of his countrymen collected to view them as objects which were rare and curious. During my ſtay, two or three of the natives came up, who ſeemed to ſhare his felicity, and always called out when there was an appearance of a favourable ſwell, as he ſometimes miſſed it, by his back being turned, and looking about for it. By them I underſtood that this exerciſe, which is called *ehorooe*, was frequent amongſt them; and they have probably more amuſements of this ſort, which afford them at leaſt as much pleaſure as ſkaiting, which is the only one of ours with whoſe effects I could compare it."

15

The language of theſe iſlanders is ſoft and melodious; Language, &c.
it abounds with vowels, and the pronunciation of it is eaſily acquired: but it was found exceſſively difficult to teach the natives to pronounce a ſingle Engliſh word; probably not only from its abounding with conſonants, but from ſome peculiarity in its ſtructure; for Spaniſh and Italian words, if ending in a vowel, they pronounced with the greateſt eaſe. A ſufficient acquaintance has not been formed with it to determine whether it is copious or not; but it is certainly very imperfect, being totally without inflexion either of nouns or verbs. Few of the nouns have more than one caſe, and few of the

verbs

Otaheite. verbs more than one tenſe. It was impoſſible to teach the iſlanders to pronounce the names of their gueſts. They called Captain Cook *Toote;* Mr Hicks, the firſt lieutenant, *Hete*, &c. and in this manner they formed names for almoſt every man in the ſhip. In ſome, however, it was not eaſy to find any traces of the original; and they were perhaps not mere arbitrary ſounds formed upon the occaſion, but ſignified words in their own language; and it ſeems that they could perfectly remember theſe appellations at the diſtance of four years, by their inquiries after ſuch gentlemen as were abſent on the ſecond voyage by name. Mr Monkhouſe, a midſhipman, they called *Matte*, which in their language ſignifies *dead;* becauſe he commanded a party that killed a man for ſtealing a muſket. The neareſt imitation they could reach of King George, was by calling him *Kihiargo*. We have the following obſervations on this ſubject, in vol. ii. of Cook's laſt voyage to the Pacific ocean: "The language of Otaheite, though doubtleſs radically the ſame with that of New Zealand and the Friendly iſlands, is deſtitute of that guttural pronunciation, and of ſome conſonants, with which thoſe latter dialects abound. The ſpecimens we have already given are ſufficient to mark wherein the variation chiefly conſiſts, and to ſhow, that, like the manners of the inhabitants, it has become ſoft and ſoothing. During the former voyage, I had collected a copious vocabulary, which enabled me the better to compare this dialect with that of the other iſlands; and during this voyage I took every opportunity of improving my acquaintance with it, by converſing with Omai before we arrived, and by my daily intercourſe with the natives while we now remained there (A). It abounds with beautiful and figurative expreſſions, which, were it perfectly known, would I have no doubt, put it upon a level with many of the languages that are moſt in eſteem for their warm and bold images. For inſtance, the Otaheiteans expreſs their notions of death very emphatically, by ſaying, "that the ſoul goes into darkneſs; or rather into night." And, if you ſeem to entertain any doubt, in aſking the queſtion, "if ſuch a perſon is their mother?" they immediately reply with ſurpriſe, "Yes, the mother that bore me." They have one expreſſion that correſponds exactly with the phraſeology of the ſcriptures, where we read of the "yearning of the bowels."—They uſe it on all occaſions, when the paſſions give them uneaſineſs, as they conſtantly refer pain from grief, anxious deſire, and other affections, to the bowels, as its ſeat; where they likewiſe ſuppoſe all operations of the mind are performed. Their language admits of that inverted arrangement of words which ſo much diſtinguiſhes the Latin and Greek from moſt of our modern European tongues, whoſe imperfections require a more orderly conſtruction, to prevent ambiguities. It is ſo copious, that for the bread-fruit alone, in its different ſtates, they have above 20 names; as many for the taro root; and about 10 for the cocoa-nut. Add to this, that, beſides the common dialect, they often expoſtulate in a kind of ſtanza or recitative, which is anſwered in the ſame manner."

A map of Otaheite, engraved for Captain Cook's firſt voyage, was taken out, and laid before Tuahow the high admiral, without informing him of what it was; however, he immediately found it out, and was overjoyed to ſee a repreſentation of his own country. He pointed out all the diſtricts of it, naming every one of them in their order. Otaheite.

Theſe people have a remarkable ſagacity in foretelling the weather, particularly the quarter from whence the wind will blow. In their long voyages they ſteer by the ſun in the day, and in the night by the ſtars; all of which they diſtinguiſh by ſeparate names, and know in what part of the heaven they will appear in any of the months during which they are viſible in their horizon. They alſo know the times of their annual appearing and diſappearing, with more preciſion than would eaſily be believed by an European aſtronomer. Their time they ſeem to reckon by moons, 13 of which make a year. The day they divide into ſix parts, and the night into an equal number. They judge of the time of the day by the height of the ſun, but they cannot aſcertain the time of the night by the ſtars. In numeration, the greateſt length they can go is 200; that is, when they have counted each of their fingers and toes ten times over. When they take the diſtance from one place to another, they expreſs it by the time which is required to paſs it.

The government of the Otaheiteans ſeems greatly to reſemble the early ſtate of the European nations under the feudal ſyſtem. Their orders of dignity are *earee-rahie*, which anſwers to king; *earee*, baron; *manahouni*, vaſſal; and *towtow*, villein. There are two kings in the iſland, one being the ſovereign of each of the peninſulas of which it conſiſts. Each of them is treated with great reſpect by all ranks, but does not appear to be inveſted with ſo much power as is exerciſed by the earees in their own diſtricts. When the king, whom they called *O-Too*, made a viſit to Captain Cook, the chiefs, who happened to be there before him, immediately ſtripped themſelves in great haſte. Captain Cook took notice of it; upon which they ſaid *earee*, *earee*, ſignifying, that it was on account of O-Too being preſent; but this was the only outward token of reſpect they paid him, for they never roſe from their ſeats, or made any other obeiſance. 16 Government.

The *earees* are lords of one or more of the diſtricts into which each of the peninſulas is divided, and of which there are 43 in the larger one. Theſe parcel out their territories to the *manahounis*, who ſuperintend the cultivation of the ground. The loweſt claſs, called *towtows*, ſeem to be nearly under the ſame circumſtances with the villeins in feudal governments. They do all the laborious work, cultivate the land, catch fiſh, fetch wood and water, &c. Each of the earees keeps a kind of court, and has a great number of attendants, chiefly the younger brothers of their own tribe, and among theſe ſome hold particular offices, but of which little more is known than ſome of their names.

In this country a child ſucceeds to his father's titles and authority as ſoon as he is born: and thus the king no ſooner has a ſon born, than his ſovereignty ceaſes.

A

(A) See this vocabulary at the end of the ſecond volume of Captain Cook's ſecond voyage. Many corrections and additions to it were now made by this indefatigable inquirer; but the ſpecimens of the language of Otaheite, already in the hands of the public, ſeem ſufficient for every uſeful purpoſe.

Otaheite. A regent is then chofen; and the father generally retains his power under that title, until his child becomes of age. The child of the baron fucceeds to the titles and honours of its father, as ſoon as it is born, as well as the ſon of the king; ſo that a baron who was yeſterday called *earee*, and was approached with the ceremony of lowering their garments, ſo as to uncover the upper part of the body, is to-day, if his wife happens to be delivered of a child, reduced to the rank of a private man; all marks of reſpect being transferred to the child, if it is ſuffered to live, though the father ſtill continues, poſſeſſor and adminiſtrator of his eſtate. But the acquieſcence which the lower claſs of people, or *towtows*, yield to the command of their chiefs, is very remarkable. They are not ſuffered to taſte any animal food, although they are employed in feeding it for their lords. They endure patiently very ſevere blows, if, when collected into a large body, they in any manner preſs upon or annoy the king or a chief in his progreſs; and all this paſſive ſpirit is preſerved without any power being lodged in the hands of the king to exact it; for he uſes no military force, nor is even attended with body guards.

There are but few actions which are reckoned crimes among the Otaheiteans. Adultery, however, is ſometimes puniſhed with death: but in general, the woman eſcapes with a ſevere beating, and the gallant paſſes unnoticed. The regulation of public juſtice is not confined to the magiſtrate; for the injured party redreſſes his own wrong by inflicting whatever puniſhment he can upon the offender: but in matters of notorious wrong the chiefs ſometimes interpoſe. The nobility have livery for their ſervants; and in proportion as the maſter's rank is more or leſs elevated, theſe faſhes are worn higher or lower, being faſtened cloſe under the arms of the ſervants belonging to the chiefs, and going round the loins of thoſe belonging to the loweſt claſs of nobility. Several parts of the iſland ſeem to be private property, which deſcend to the heir of the poſſeſſor on his death, and the deſcent ſeems to fall indifferently on man or woman. Captain Cook was of opinion that the number of inhabitants on the whole iſland amounted to 204,000 including women and children.

The religious language of the Otaheiteans, like that of the Gentoo Bramins, is different from what is uſed in common diſcourſe; but, according to the accounts we have of their notions concerning the origin of the world, nothing can be more ridiculous. They imagine that the Supreme Deity, beſides a great many female deſcendants, has one ſon named *Tane;* and to him they direct their worſhip, though they do not believe that the good or bad conduct of mankind here on earth makes them more or leſs acceptable to this divinity. They believe the exiſtence of the ſoul after death, and of a greater or leſſer degree of happineſs to be then enjoyed: but they ſeem to have no conception of a ſtate of puniſhment or of ſuffering hereafter. The ſhare of happineſs which they imagine every individual will enjoy in this future ſtate, will be aſſigned to him according to the rank he holds on earth. We are not, however, told wherein they ſuppoſe the happineſs of this future ſtate to conſiſt; but it is moſt probably a pretty exact imitation of a Mohammedan paradiſe, for theſe voluptuaries can hardly be ſuppoſed capable of imagining any pleaſure independent of the intercourſe of the ſexes.

17 Religion.

The prieſthood ſeems to be hereditary in one family or tribe; and as it is ſaid to be numerous, probably thoſe of that order are reſtrained from becoming members of the arreoy: but whether or not any peculiar decorum is neceſſary to be obſerved, hath not yet appeared. Theſe prieſts are profeſſedly the men of ſcience; but their knowledge is altogether frivolous and uſeleſs; for it conſiſts in being converſant with the names of their different divinities, and ſuch abſurd traditions as have been handed down among them from one generation to another. Their religious notions being depoſited in an unknown tongue, they are reſpected becauſe they are not underſtood; and as the cure of the ſoul is no object of regard, the moſt important concern to theſe people, the cure of their bodies, is committed to the prieſts, and much parade is uſed in their attempts to recover the ſick, though their remedies conſiſt of ridiculous ceremonies and enchantments rather than any thing elſe. Otaheite.

The marriages of theſe people are merely ſecular contracts; but no one has a right to perform the operation of tattowing except the prieſts; and this being a cuſtom univerſally adopted by the natives, it may be ſuppoſed that performing it is a very lucrative employment. The males in general undergo a kind of circumciſion, which it is diſgraceful not to comply with, and which is likewiſe the excluſive privilege of the prieſts to perform. But what moſt eſtabliſhes the credit of this order of men is their ſkill in aſtronomy and navigation.

Captain Cook, who had ſome reaſon to believe that among the religious cuſtoms of this people, human ſacrifices were ſometimes offered up to their deities, went to a morai, or place of worſhip, accompanied by Captain Furneaux, having with them a ſailor who ſpoke the language tolerably well, and ſeveral of the natives. In the morai was a tupapow, a kind of bier, with a ſhed erected over it, on which lay a corpſe and ſome proviſions. Captain Cook then aſked if the plantain were for the Eatua? If they ſacrificed to the Eatua hogs, dogs, fowls, &c.? To all of which an intelligent native anſwered in the affirmative. He then aſked if they ſacrificed men to the Eatua? He was anſwered, *taato eno*, "bad men they did; firſt *tiparrahy*, beating them till they were dead." He then aſked if good men were put to death in this manner? His anſwer was no, only *taato eno*. The Captain then aſked if any carees were? The native replied, they had hogs to give the Eatua, and again repeated *taato eno*. He was then aſked if towtows, who had no hogs, dogs, or fowls, but yet were good men, were ever ſacrificed to the Eatua? The anſwer ſtill was no, only bad men. Many other queſtions were put to him; all his anſwers to which ſeemed to confirm the ideas that men for certain crimes were condemned to be ſacrificed to the gods, provided they did not poſſeſs any property which they might give for their redemption. However, in purſuing ſuch inquiries as theſe, no certain information could be obtained, on account of the ſlight knowledge which had been acquired of the language of the country: but according to further accounts which Captain Cook received from Omai, it ſeems to reſt with the high-prieſt to ſingle out the victims for ſacrifice; who, when the people are aſſembled on any ſolemn occaſion, retires alone into the houſe of God, and ſtays there for ſome time; when he comes out, he informs the aſſembly that he has ſeen and converſed with the great god (the high prieſt alone having that privilege), and that he has aſked for a human ſacrifice; and tells them he has deſired ſuch a perſon,

Otaheite. perſon, naming a man preſent, who has moſt probably, on ſome account or other, rendered himſelf obnoxious to this ghoſtly father. The words are no ſooner gone out of his mouth, than the devoted wretch is put to death; for his guilt cannot be doubted, after the oracle has pronounced his doom.

On this iſland was ſeen the figure of a man conſtructed of baſket work, rudely made, but not ill deſigned: it was ſomething more than ſeven feet high, and rather too bulky in proportion to its height. This wicker ſkeleton was completely covered with feathers, which were white where the ſkin was to appear, and black in the parts which it is their cuſtom to paint or ſtain, as well as upon the head, which was deſigned to repreſent hair. Upon the head alſo were four protuberances, three in front, and one behind, which the Indians called *tate ete*, little men. The image was called *Monioe;* it was a repreſentation of *Mauwe*, one of their Eatuas, or gods of the ſecond claſs, and was ſaid to be the only one of the kind on Otaheite.

Theſe people pray at ſunriſe and ſunſet. They have alſo a number of ſuperſtitious practices, in order to conciliate the influence of evil genii. E-Tee, a chief, who ſeemed to be the king's prime miniſter in 1774, very ſeriouſly aſked Mr Forſter whether they had a god (*Eatua*) in their country, and whether they prayed to him (*epore?*) When he told them that they acknowledged a divinity who had made every thing, and was inviſible, and that they were accuſtomed to addreſs their petitions to him, he ſeemed to be highly pleaſed, and repeated his words with comments of his own, to ſeveral perſons who ſat round him; ſeeming thereby to intimate, that the ideas of his countrymen correſponded with theirs in this reſpect.

Their morais are uſed both as burying-grounds and places of worſhip; they are approached with the moſt wonderful expreſſions of reverence and humility; and this, it ſhould ſeem, not becauſe any thing there is eſteemed ſacred, but becauſe they there worſhip an inviſible being, for whom they entertain the moſt reverential reſpect, although not excited by the hope of reward or the dread of puniſhment. Though they do not appear to have any viſible object of worſhip, yet, ſays Captain Cook, this iſland, and indeed the reſt that lie near it, have a particular bird, ſome a heron, and others a king's-fiſher, to which they pay a particular regard, and concerning which they have ſome ſuperſtitious notions, reſpecting good or bad fortune, as we have of the ſwallow and robin redbreaſt, and will on no account moleſt or kill them. One of theſe cemeteries, or places of worſhip, was known to Captain Cook, on his firſt voyage, by the name of Tootahah's morai, then the regent; but when, on his ſecond voyage, after the death of that chief, he called it by that name, Maratata, a chief that accompanied the party, interrupted him, intimating, that it was no longer Tootahah's after his death, but was then known as O-Too's morai, the then reigning prince. A fine moral for princes! daily reminding them of mortality whilſt they live, and teaching them, that after death they cannot call even that ground their own which their dead corpſe occupies! The chief and his wife, on paſſing by it, took their upper garments from their ſhoulders. From hence it would ſeem, that the royal family have a particular morai, and that it always bears the name of the reigning prince. Otaheite.

An Indian, who had ſnatched away a muſket from a ſentry whilſt on duty, was, by the inhumanity of a midſhipman who commanded the guard, purſued and ſhot. The unhappy fate of this poor fellow gave an opportunity for ſeeing the manner in which theſe people treat their dead. They placed the corpſe in the open air till the bones became quite dry: a ſhed was erected cloſe by the houſe where the deceaſed had reſided; it was about 15 feet long, and 11 broad; one end was left quite open; the other end, and the two ſides, were partly incloſed with a ſort of wicker-work. The bier was a frame of wood, like that on which the ſea-beds, called *cots*, are placed, with a matted bottom, and ſupported by four poſts, at the height of about four feet from the ground. The body was covered firſt with a mat, and then with white cloth; by the ſide of it lay a wooden mace, one of their weapons of war; and near the head of it, which lay next to the cloſe end of the ſhed, lay two cocoa-nut ſhells; at the other end a bunch of green leaves, with ſome dried twigs, all tied together, were ſtuck in the ground, by which lay a ſtone about as big as a cocoa-nut. Near theſe lay one of the young plantain-leaves that are uſed for emblems of peace, and cloſe by it a ſtone axe. At the open end of the ſhed alſo hung, in ſeveral ſtrings, a great number of palm nuts; and without the ſhed was ſtuck up in the ground a ſtem of a plantain tree, about ſix feet high, upon the top of which was placed a cocoa-nut ſhell full of freſh water; againſt the ſide of one of the poſts hung a ſmall bag, containing a few pieces of bread-fruit ready roaſted, which had not been put in all at one time, ſome being freſh and others ſtale. This minute examination of their manner of treating their dead, ſeemed to be very unwelcome to the natives. The food ſo placed by the corpſe is deſigned as an offering to their gods. They caſt in, near the body, ſmall pieces of cloth, on which the tears and blood of the mourners have been ſhed; for in their paroxyſms of grief it is an univerſal cuſtom, to wound themſelves with a ſhark's tooth. The mourner is always a man; and he is dreſſed in a very ſingular habit. When the bones are ſtripped of their fleſh, and become dry, they are buried. This regard to their dead is very remarkable: one of the ſhip's company happening to pull a flower from a tree which grew on one of their ſepulchral incloſures, an Indian came ſuddenly behind him and ſtruck him; and a party of ſailors, who were ſent to get ſome ſtones for ballaſt for the ſhip, had like to have been embroiled by the natives, by pulling down ſome part of an incloſure of this kind. This ſhade under which their dead are laid is called *tupapow;* the incloſure in which their bones are depoſited is called *morai;* theſe latter, as has been already related, are alſo places of worſhip. As ſoon as a native of Otaheite is known to be dead, the houſe is filled with relations, who deplore their loſs; ſome by loud lamentations, and ſome by leſs clamorous, but more genuine expreſſions of grief. Thoſe who are in the neareſt degree of kindred, and are really affected by the event, are ſilent; the reſt are one moment uttering paſſionate exclamations in a chorus, and the next laughing and talking without the leaſt appearance of concern. In this manner the remainder of the day on which they aſſemble is ſpent, and all the ſucceeding night. On the 18 Funerals.

next

Otaheite. next morning the body is ſhrouded in their cloth, and conveyed to the ſea-ſide on a bier, which the bearers ſupport upon their ſhoulders, attended by the prieſt, who having prayed over the body repeats his ſentences during the proceſſion. When it arrives at the water's edge, it is ſet down upon the beach; the prieſt renews his prayers, and taking up ſome of the water in his hands, ſprinkles it towards the body, but not upon it. It is then carried back 40 or 50 yards; and ſoon after brought again to the beach, where the prayers and ſprinkling are repeated. It is thus removed backwards and forwards ſeveral times; and while theſe ceremonies have been performing, a houſe has been built, and a ſmall ſpace of ground railed in. In the centre of this houſe, or *tupapow*, as they term it, poſts are ſet up to ſupport the bier, which is at length conveyed thither, and placed upon it; and here the body remains to putrify, till the fleſh is wholly waſted from the bones. Theſe houſes of corruption are of a ſize proportioned to the rank of the perſon whoſe body they are to contain. Thoſe allotted to the lower claſs are juſt ſufficient to cover the bier, and have no railing round them. The largeſt that was ſeen was 11 yards long; and ſuch are ornamented according to the abilities and inclination of the ſurviving kindred, who never fail to lay a profuſion of good cloth about the body, and ſometimes almoſt cover the outſide of the houſe. Garlands of the fruit of the palm nut, or pandanus, and cocoa-leaves, twiſted by the prieſts in myſterious knots, with a plant called by them *ethee no morai*, which is particularly conſecrated to funeral ſolemnities, are depoſited about the place; proviſion and water are alſo left at a little diſtance. As ſoon as the body is depoſited in the tupapow, the mourning is renewed. The women aſſemble, and are led to the door by the neareſt relation, who ſtrikes a ſhark's tooth ſeveral times into the crown of her head; the blood copiouſly follows, and is carefully received upon pieces of linen, which are thrown under the bier. The reſt of the women follow this example; and the ceremony is repeated at the interval of two or three days, as long as the zeal and ſorrow of the parties hold out. The tears alſo which are ſhed upon theſe occaſions are received upon pieces of cloth, and offered as oblations to the dead. Some of the younger people cut off their hair, and that is thrown under the bier with the other offerings. This cuſtom is founded on a notion, that the ſoul of the deceaſed, which they believe to exiſt in a ſeparate ſtate, is hovering about the place where the body is depoſited; that it obſerves the actions of the ſurvivors, and is gratified by ſuch teſtimonies of their affectionate grief. Whilſt theſe ceremonies are carrying on by the women, the men ſeem to be wholly inſenſible of their loſs; but two or three days after, they alſo begin to perform a part. The neareſt relations take it in turn to aſſume the dreſs, and perform the offices.

The chief mourner carries in his hand a long flat ſtick, the edge of which is ſet with ſharks teeth; and in a frenzy, which his grief is ſuppoſed to have inſpired, he runs at all he ſees, and if any of them happen to be overtaken, he ſtrikes them moſt unmercifully with his indented cudgel, which cannot fail to wound them in a dangerous manner. The proceſſions continue at certain intervals for five moons; but are leſs and leſs frequent, by a gradual diminution, as the end of that time approaches. When it is expired, what remains of the body is taken down from the bier; and the bones, having been ſcraped and waſhed very clean, are buried, according to the rank of the perſon, either within or without a morai. If the deceaſed was an earee, or chief, his ſkull is not buried with the reſt of his bones, but is wrapped up in fine cloth, and put in a kind of box made for that purpoſe, which is alſo placed in the morai. This coffin is called *ewharre no te oremetua*, "the houſe of a teacher, or maſter." After this the mourning ceaſes, except ſome of the women continue to be really afflicted at the loſs, and in that caſe they will ſuddenly wound themſelves with the ſhark's tooth wherever they happen to be. The ceremonies, however, do not ceaſe with the mourning; for prayers are ſtill ſaid by the prieſt, and offerings made at the morai. Some of the things, which from time to time are depoſited there, are emblematical; a young plantain is ſaid to repreſent the deceaſed, and a bunch of feathers the Deity who is invoked. The prieſt places himſelf overagainſt the ſymbol of the god, accompanied by ſome of the relations, who are furniſhed with a ſmall offering: he repeats his oriſon in a ſet form, conſiſting of ſeparate ſentences; at the ſame time weaving the leaves of the cocoa-nut into different forms, which he afterwards depoſites upon the ground where the bones have been interred: the Deity is then addreſſed by a ſhrill ſcreech, which is uſed only upon that occaſion. When the prieſt retires, the tuft of feathers is removed, and the proviſions are left to putrify, or be devoured by the rats. Otaheite.

This ceremony of mourning, as deſcribed above, was performed by Tirope, one of the wives of Tubourai Tamaide; who, when the bleeding from the wounds which ſhe had thus given herſelf ceaſed, looked up with a ſmile on the company round her, and who had before inquired of her, very earneſtly, the cauſe of her behaviour, without receiving any anſwer, or having been at all noticed by her. She then began to pick up ſome ſmall pieces of cloth which ſhe had ſpread to catch the blood; and having got them all together, ſhe went to the ſhore, and threw them into the ſea. She then plunged into the river; and having waſhed her whole body, returned to the company as chearful as ever. To add to the ſingularity of this conduct, the Indians who ſtood round her all the time that this frantic diſtreſs was performing, converſed with great indifference and jocularity.

There is not a more ancient cuſtom handed down to us than that of cutting the body to expreſs grief and diſtreſs of mind. In the code of laws delivered by Moſes to the Iſraelites, 1400 years before the Chriſtian era, this practice is expreſsly forbidden to that people: "Ye ſhall not cut yourſelves, or make any baldneſs between the eyes for the dead," Deut. xiv. 1. Hence it may be ſuppoſed that this rite prevailed in Egypt, from whence the Jews derived moſt of thoſe propenſities which were inhibited by their great legiſlator. We are told likewiſe in the book of Kings, of the prieſts of Baal wounding themſelves, after they had long waited in vain for the ſupernatural intervention of their idol. D'Arvieux informs us, that the modern Arabs retain the ſame cuſtom, and that the part they chiefly wound is their arms. The difference in the practice as now prevailing in Otaheite and Arabia ſeems to be, that in the firſt none but the women make uſe of it, and in the latter it is confined to the men, and generally uſed to expreſs their deſperate paſſion for ſome favourite miſtreſs.

Otaheite. The mourning which is worn here is a head dreſs of feathers, the colour of which is conſecrated to death, and a veil over the face. This dreſs is called *eeva*. The whole nation is ſaid to appear thus on the death of their king. The mourning for fathers is very long. The women mourn for their huſbands, but not the huſbands for their wives.

We ſhall conclude this account of Otaheite with the hiſtory of *Omai*, or, as he is improperly called *Omiah*, who was brought over to England. He was a native of Ulietea, or Raietea; and embarked at Huaheine with Captain Furneaux, on board the Adventure, in September 1773; and the two ſhips ſeparating in a ſtorm on the coaſt of New Zealand a few months afterwards, the voyage of the Adventure was brought to a much earlier concluſion than that of the Reſolution, for ſhe arrived at Spithead the 14th of July following. This youth is ſaid to have had ſome property in his native ſoil, of which he was diſpoſſeſſed by the people of Bolabola: but he was not one of the earees, or gentry of that country, but of the middling claſs of people. He was eminent neither for figure, ſhape, nor complexion; his colour being of a deep hue, reſembling a towtow, or one of the common people; and both Captain Cook and Mr Forſter agree in thinking him no proper ſample of the inhabitants of thoſe iſlands, in reſpect of perſonal beauty. However, they are both of opinion, that the qualities of his heart and head reſembled thoſe of his countrymen in general, and that no one of the natives would have given more general ſatisfaction by his behaviour whilſt he remained in England. He is deſcribed as poſſeſſing a good underſtanding, quick parts, and honeſt principles: not an extraordinary genius like Tupia; yet not at all deficient in intelligence, which appears from his knowledge of the game of cheſs, in which he made an amazing proficiency. His principal patrons, whilſt in England, were, the earl of Sandwich, Mr Banks, and Doctor Solander. His noble patron introduced him to his majeſty at Kew; and, during his ſtay in England, he was careſſed by many of the principal nobility. He naturally imitated that eaſy and elegant politeneſs which is prevalent among the great, and which is one of the ornaments of civilized ſociety. Indeed he adopted the manners, the occupations, and amuſements of his companions in general, and gave many proofs of a quick perception and a lively fancy. He appears, however, to have been treated, whilſt he reſided here, rather as a faſhionable exhibition, than as a rational being. No attention ſeems to have been paid to the enriching his mind with uſeful knowledge, ſuch as might have rendered him a valuable acquiſition to his country on his return thither; no means were uſed to inſtruct him in agriculture, or any mechanical art or uſeful manufacture; and, above all, to poſſeſs him with a moral ſenſe; to teach him the exalted ideas of virtue, and the ſublime principles of revealed religion. After a ſtay of two years in England, and having been inoculated for the ſmallpox, he embarked with Captain Cook, on board the Reſolution, on his return home, loaded with a profuſion of preſents. At parting with his friends here, his tears flowed plentifully, and his whole behaviour beſpoke him to be ſincerely affected at the ſeparation: but though he lived in the midſt of amuſements during his reſidence in England, his return to his native country was always in his thoughts; and though he was not impatient to go, he expreſſed a ſatisfaction as the time of his return approached. Otaheite || Othniel.

Such is the account of this people which our limits permit us to give. In the hiſtory of mankind it is not without importance; and in the hands of the philoſopher, the moraliſt, or the divine, it may be uſeful. The ſubject, becauſe but new, has been much agitated, and is pretty generally known. Such of our readers as make men and manners their peculiar ſtudy, will be anxious for further information; we muſt refer them, however, to thoſe authors who have written particularly and copiouſly on the ſubject. Cook and other voyagers of eminence will at leaſt command attention. We may juſt remark, that there muſt ſurely be ſomething extremely faſcinating in the perſons, manners, or cuſtoms of the inhabitants, or in the ſoil and appearance of the country, that could tempt the greater part of a ſhip's crew to reſiſt authority, and forcibly to return to Otaheite; yet ſuch we know was the caſe; and the ſufferings of the commander, and thoſe who refuſed to join in this vile conſpiracy, and who were therefore expoſed in an open boat, were indeed ſhocking. An account of it has been publiſhed.

OTALGIA, the Ear-ach. See Medicine *Index*.

OTELANDS, or Oatlands, in England, in the county of Surry, near Weybridge, was formerly a royal palace, wherein Henry duke of Glouceſter, third ſon to King Charles I. was born; and had a deer park, which in the civil wars was by the parliament laid open, and the houſe demoliſhed. In 1673 there was a brick wall remaining, which encompaſſed ten acres; but there were then ſmall traces of the chief pile, beſides the gardener's lodge, wherein was the ſilk-worm room raiſed by King James I.'s queen. It is now a moſt magnificent building, and commands a moſt extenſive and beautiful proſpect. In the park there was a paddock, where Queen Elizabeth uſed to ſhoot with a croſs bow. It is now the property of his royal highneſs the duke of York, who purchaſed it for 43,000l. of the duke of Newcaſtle, 1789.

ORTFORD, in England, in the county of Kent, by the Darent, at the bottom of a hill. In 793 there was a battle at this place, between the two Saxon kings, Offa of Mercia and Alrick of Kent, who was killed by Offa; and another in 1016, wherein the Daniſh king Canute was routed by King Edmund Ironſide. The ſaid Offa, to atone for the blood he had ſhed in that battle, firſt gave this place to Chriſt-church, Canterbury (as the deed ſays) *in paſcua porcorum*, "for the ſupport of the archbiſhop's hogs;" and ſo it remained in the archbiſhop's liberty, till exchanged with King Henry VIII. for other lands. There was a chantry founded at the Ryehouſe in this pariſh. The church was once a chapel to Shoreham.

OTHNIEL, in ſacred hiſtory, the ſon of Kenaz, of the tribe of Judah. We are told (Joſh. xv. 17.), that Othniel was brother to Caleb; and (Judges i. 13.) it is expreſsly ſaid, that he was Caleb's younger brother. There are, however, ſome difficulties in this; for if Caleb and Othniel had been brothers, the latter could not have married his niece Achſah the daughter of Caleb. Secondly, the ſcripture never aſſigns to Caleb and Othniel the ſame father: it always names Kenas as father to Othniel, and Jephunneh as the father of Caleb. Laſtly, Caleb muſt be much older than Othniel, ſince

he

Othniel, Otho.

he gave Othniel his daughter Achſah in marriage. Thus it ſeems much better to ſuppoſe Kenaz and Jephunneh to be two brothers, and that Othniel and Caleb were couſin-germans, and in this ſenſe to be nearly related, or brothers according to the language of ſcripture. Thus Achſah being but ſecond couſin in reſpect of Othniel, he might marry her without doing any thing contrary to the letter of the law.

Caleb having received his portion in the mountains of Judah, in the midſt of a country that was poſſeſſed by giants of the race of Anak, after he had taken the city of Hebron, he advances towards Debir, otherwiſe called *Kirjath-ſepher*, and declares that he would give his daughter Achſah in marriage to him that ſhould take Kirjath-ſepher. Othniel took it, and had Achſah to wife.

After the death of Joſhua, the Iſraelites not giving themſelves the trouble to exterminate the Canaanites that were then in the land, and not having continued in their fidelity to the Lord, he delivered them over to Chuſhan-ruſhathaim king of Meſopotamia (Judges iii. 4, &c.), to whom they continued in ſubjection for eight years. Then they cried to the Lord, who raiſed them up a deliverer in the perſon of Othniel the ſon of Kenaz, who was filled with the ſpirit of God, and judged Iſrael. He came into the field, and gave battle to Chuſhan-ruſhathaim, beat him, and delivered Iſrael in the year of the world 2599; and the country was at reſt for 40 years. After this Othniel died; but the preciſe year of his death is not known.

OTHO, M. Salvius, a Roman emperor, born A. D. 32, of a family deſcended from the ancient kings of Etruria. He was among the number of Nero's favourites, and accordingly was raiſed to the higheſt offices of the ſtate, and made governor of Pannonia by the intereſt of Seneca, who wiſhed to remove him from Rome, leſt Nero's love for Poppæa ſhould prove his ruin. After Nero's death Otho conciliated the favour of Galba the new emperor; but when he did not gain his point, and when Galba refuſed to adopt him as his ſucceſſor, he reſolved to make himſelf abſolute, without any regard to the age or dignity of his friend. The great debts which he had contracted encouraged his avarice; and he procured the aſſaſſination of Galba, and made himſelf emperor. He was acknowledged by the ſenate and the Roman people; but the ſudden revolt of Vitellius in Germany rendered his ſituation very precarious, and it was mutually reſolved that their reſpective right to the empire ſhould be decided by arms. Otho obtained three victories, but in a general engagement near Brixellum his forces were defeated, and he ſtabbed himſelf when all hopes of ſucceſs had vaniſhed. This happened about the 37th year of his age, after a reign of about three months. It has been juſtly obſerved, that the laſt moments of Otho's life were thoſe of a philoſopher. He comforted his ſoldiers who lamented his fortune, and he expreſſed his concern for their ſafety when they earneſtly ſolicited to pay him the laſt friendly offices before he ſtabbed himſelf; and he obſerved, that it was better that one man ſhould die than that all ſhould be involved in ruin on account of his obſtinacy. His nephew was much affected and feared exceedingly the anger and haughtineſs of the conqueror; but Otho comforted him, and obſerved, that Vitellius would be kind and affectionate to the friends and relations of Otho, ſince Otho was not aſhamed to ſay, that in the time of their greateſt enmity the mother of Vitellius had received every friendly treatment from his hands. He alſo burnt the letters which, by falling into the hands of Vitellius, might provoke his reſentment againſt thoſe who had favoured the cauſe of an unfortunate general. Theſe noble and humane ſentiments in a man who was the aſſociate of Nero's ſhameful pleaſures, and who had ſtained his hand in the blood of his maſter, have appeared to ſome wonderful, and have paſſed for the features of policy, and not of a naturally virtuous and benevolent heart. His father was a favourite of Claudius.

Otho.

Otho, a tribune of the people, who, in Cicero's conſulſhip, made a regulation to permit the Roman knights at public ſpectacles to have the 14 firſt rows after the ſeats of the ſenators. This was oppoſed with virulence by ſome, but Cicero ably defended it, &c.

Otho, *Venius*, a very celebrated Dutch painter. He was deſcended of a conſiderable family in Leyden, and was born in 1556. He was carefully educated by his parents in the belles lettres, and at the ſame time learned to deſign of Iſaac Nicholas. He was but 15 when the civil wars obliged him to leave his country. He retired to Liege, finiſhed his ſtudies, and there gave the firſt proofs of the excellence of his mind. He was well known to Cardinal Grooſbeck, who gave him letters of recommendation when he went to Rome, where he was entertained by Cardinal Maduccio. His genius was ſo active, that he applied himſelf to philoſophy, poetry, mathematics, and painting, all at once. He became a great proficient in deſigning under Frederico Zuchero. He acquired an excellence in all the parts of painting, eſpecially in the knowledge of the claro-obſcuro; by which means he came to be accounted one of the moſt ingenious men of his age. He lived at Rome ſeven years, during which time he performed ſeveral rare pieces; and then paſſing into Germany, was received into the ſervice of the emperor. After this the duke of Bavaria and the elector of Cologne employed him; but all the advantages he got from the courts of foreign princes could not detain him there. He had a deſire to return into the Low Countries, of which Alexander Farneſe, prince of Parma, was then governor. He drew the prince's picture, armed cap-a-pee, which confirmed his reputation in the Netherlands. After the death of that prince, Venius returned to Antwerp, where he adorned the principal churches with his paintings. The archduke Albert, who ſucceeded the prince of Parma in the government of the Low Countries, ſent for him to Bruſſels, and made him maſter of the mint; a place which occupied much of his time, yet he found ſome time for the exerciſe of his profeſſion. He drew the archduke and the infanta Iſabella's portraits at large, which were ſent to James I. of Great Britain: and, to ſhow his knowledge of polite learning likewiſe, he publiſhed ſeveral treatiſes, which he embelliſhed with cuts of his own deſigning. Louis III. made him very great offers to tempt him into his ſervice; but he would never leave his own country, ſatisfying himſelf with the character and employments he held there. He was the firſt, after Polydore Caravaggio, who reduced the claro-obſcuro to a principle of the art of painting. Rubens perfected what he began, and the whole Flemiſh ſchool

Othonna || Otodini.

learned it of him. Venius died at Bruſſels, 1634, in his 78th year. He had two brothers, Gilbert, who was a graver, and Peter a painter. He had alſo the honour of breeding up the famous Rubens in his art.

OTHONNA, a genus of plants belonging to the ſyngeneſia claſs; and in the natural method ranking under the 49th order, *Compoſitæ*. See BOTANY *Index*.

OTHRYADES, one of the 300 Spartans who fought againſt 300 Argives, when thoſe two nations diſputed their reſpective right to Thyreata. Two Argives, Alcinor and Cronius, and Othryades, ſurvived the battle. The Argives went home to carry the news of their victory; but Othryades, who had been reckoned among the number of the ſlain on account of his wounds, recovered himſelf, and carried ſome of the ſpoils of which he had ſtripped the Argives into the camp of his countrymen; and after he had raiſed a trophy, and had written with his own blood the word *vici* on his ſhield, he killed himſelf, unable or unwilling to ſurvive the death of his countrymen.

OTIS, a genus of birds belonging to the order of gallinæ. See ORNITHOLOGY *Index*.

OTLEY, a town of England, in the weſt riding of Yorkſhire, under a cliff called *Chevin*, on the ſouth ſide of the river Wherfe. The adjacent parts are reckoned the moſt delightful in England. Its church has lately been elegantly fitted up, in which are ſeveral good old monuments. The adjacent country is much improved, and from the Chevin is a moſt beautiful view of an extenſive ſcope of undeſcribed manſions. This manor was given by Athelſtan to the ſee of York, whoſe archbiſhop had a palace here, with ſeveral extenſive privileges. There is a free grammar ſchool in this place, founded by Mr Cave, 1611, called *Prince Henry's School*. In 1673, it ſuffered much by an inundation; which carried away ſeveral bridges, mills, &c. as well as much corn, &c. W. Long. 1. 48. N. Lat. 53. 54.

OTODINI, ancient Britons, ſeated, as ſome ſuppoſe, to the north eaſt of the Brigantes, in the countries now called Northumberland, Merſe, and the Lothians. As the Otodini are not mentioned by any of the Roman hiſtorians, but only by Ptolemy, it is uncertain whether they formed a diſtinct independent ſtate, or were united with the Brigantes. They were, however, a conſiderable people, and poſſeſſed a long tract of the ſea-coaſt, from the river Tine to the frith of Forth. Their name is derived by Baxter from the old Britiſh words *Ot o dineu*, which ſignify "a high and rocky ſhore;" deſcriptive enough of their country. They were probably reduced by Agricola at the ſame time with their more powerful neighbours the Brigantes; but as they lived without the wall of Severus, they were, like the reſt of the Mæatæ, engaged in frequent revolts. In the moſt perfect ſtate of the Roman government in this iſland, the country of the Otodini made a part of the Roman province called Valentia; which comprehended all that large tract between the two walls. As this province was never long together in the peaceable poſſeſſion of the Romans, they had but few ſtations in the country of the Otodini, except thoſe on the line of the wall of Severus.

Henry's Hiſt. Gr. Brit. vol. i. p. 185, &c.

Otranto.

Various authors have derived the name of this people in various ways, and it is very differently ſpelled; and various opinions ſtill ſeem to be entertained among the learned reſpecting their real ſituation: and it is even doubtful whether their country was in England or in Scotland. The celebrated Drummond of Hawthornden contends for the latter.

OTRANTO, or TERRA D'OTRANTO, a province of Italy in the kingdom of Naples; bounded on the north by the Terra di Bari and by the gulf of Venice, on the eaſt by the ſame gulf, and on the ſouth and weſt by a great bay which is between that and the Baſilicata. It is a mountainous country, abounding in figs, olives, and wine. It is often viſited by locuſts, and by Algerine pirates, who carry off all the people they can catch into ſlavery. But to keep them off, there are a great many forts on the coaſts.

OTRANTO, a city of Italy, in the kingdom of Naples, and capital of the province of the ſame name, with a commodious harbour, an archbiſhop's ſee, and a ſtrong citadel, where the archbiſhop reſides. Mr Swinburne * gives this account of it: "It is (ſays he) ſmall, ſtands on a hill, and contains only 3000 inhabitants. Its little harbour is not ſo bad but it might induce more people to ſettle here, as no port on the coaſt lies ſo convenient for traffic with Greece. The Adriatic gulf is here but 60 miles wide. I climbed to the top of a tower, to get a ſight of the Acroceraunian mountains; but a vapour hanging over the ſea, along the horizon, hid them from my view: in a clear morning, their ſnowy tops are ſaid to be very viſible. The cathedral of Otranto is Gothic, and, according to the Puglian faſhion, has its ſubterraneous ſanctuary. The columns are of beautiful marble and granite; the pavement, a rude ſpecies of moſaic, commonly called *Saracenic*: As it is to be met with in all churches founded by the Norman kings of Sicily, the artiſts who laid it were probably Saracens, or at leaſt Greeks, their ſcholars. Theſe moſaics are compoſed of pieces of porphyry, ſerpentine, and cubes of gilt glaſs,—diſpoſed in ſtars, circles, or chequers. The compartments of the ſtalls are bordered with them; and the ſmall twiſted columns, which ſupport the pulpits and canopies, are ornamented with a ſpiral ſtripe of the ſame work. It is a pity ſo much durability, compactneſs, and beauty of materials, ſhould have been laviſhed on ſuch barbarous deſigns. Otranto was a Roman colony, as is certified by an inſcription, almoſt the only monument of antiquity left there (A). In the 10th century it was made an archbiſhop's ſee. In 1480, Laurence de Medici, to deliver himſelf from the attacks of the king of Naples, perſuaded Mahomet II. to invade the realm; and Otranto was the unfortunate place where the Turks landed. It was inveſted, ſtormed, and pillaged. Its prelate was ſlain at the door of his church; 800 principal citizens dragged out of the gates and butchered; their bodies left 12 months unburied, till the duke of Calabria retook the city, and committed them to hallowed earth. About 100 years after, a devout perſon affirmed, that theſe bones had appeared to him in a dream;

* *Travels in the two Sicilies*, vol. i.

(A) "Num. Hydr.—ÆR Caput barb. & laureat. ΥΔΡΟΝΤΙΝΩΝ. = Tridens, cum duobus delphinibus."

Otricoli || Otway.

dream; and, upon the ſtrength of his viſion, they became, for the vulgar, objects of almoſt equal veneration with the relicks of the primitive martyrs."

OTRICOLI, a ſmall town of Italy, in the eccleſiaſtical ſtate, and in the duchy of Spoletto, in E. Long. 12. 23. N. Lat. 42. 26. ſituated on a riſing ground on the frontiers of the patrimony of St Peter. From this town is ſeen a fine plain, and ſome of the windings of the famous river Tiber. The ruins that are ſcattered here and there at the entrance of the plain, deſcending from Otricoli, are thought to be the remains of the ancient Otricolum; they conſiſt of ſome ſhapeleſs fragments of columns, cornices, and other pieces of marble. In the middle of the great ſtreet of Otricoli, there is a marble pedeſtal, upon which you ſee an inſcription, ſhowing they had erected a ſtatue to Julia Lucilla, who had built public baths at Otricoli at her own expence.

OTTER. See MUSTELA, MAMMALIA *Index*.

OTTER of Roſes. See ROSES.

OTTERBURN, in England, in the county of Northumberland, near Elleſdon. It was the field of battle between the Engliſh and Scots in 1388, wherein Henry Percy, called *Hotſpur*, was taken priſoner, and Douglas the Scotch general was killed. On this battle was founded the delightful old ballad of Chevy chaſe; the village being ſituated by the river Rhead, on the ſouth ſide of the Cheviot hills. The entrenchments are ſtill viſible; and a number of tumuli ſcattered over the adjacent ground mark to future ages the ſlaughter made there.

OTTERY, ST MARY'S, a market town in Devonſhire, ſituated 159 miles weſt of London, and 10 miles eaſt of Exeter. The church is very ancient, and ſomewhat reſembles a cathedral. A very extenſive woollen manufactory was lately eſtabliſhed here by Sir Geo. Yonge, and Sir John Duntze, Barts. It has no corporation. It derived its name, as ſome ſuppoſe, from the river Otter, and that from the otters formerly found in it. This town was given by King Edward the Confeſſor to the church of St Mary at Roen in Normandy; but was afterwards bought by Grandiſon biſhop of Exeter; who made of it a quarter college in 10 Edward III. and therein placed ſecular prieſts, with other miniſters, to whom he gave the whole manor, pariſh, tythes, fines, ſpiritual profits, &c. which amounted to 304l. 2s. 10d. yearly.

OTWAY, THOMAS, an eminent tragic poet, was the ſon of Mr Humphry Otway, rector of Wolbeding in Suſſex; and was born at Trottin in that county on the 3d of March 1651. He was educated at Oxford; when, leaving the univerſity without a degree, he retired to London, where he commenced player, but with indifferent ſucceſs. However, the ſprightlineſs of his converſation gained him the favour of Charles Fitz-Charles earl of Plymouth, who procured him a coronet's commiſſion in one of the new-raiſed regiments ſent into Flanders; but he returned from thence in very neceſſitous circumſtances, and applied himſelf again to writing for the ſtage. In comedy he has been deemed too licentious; which, however, was no great objection to his pieces in the profligate days of Charles II. But, in tragedy, few Engliſh poets have ever equalled him; and perhaps none ever excelled him in touching the paſſions, particularly the tender paſſion. There is generally ſomething familiar and domeſtic in the fable of his tragedies, and there is amazing energy in his expreſſion.—The heart that doth not melt at the diſtreſſes of his Orphan muſt be hard indeed! But though Otway poſſeſſed in ſo eminent a degree the rare talent of writing to the heart, yet he was not very favourably regarded by ſome of his cotemporary poets, nor was he always ſucceſsful in his dramatic compoſitions. After experiencing many reverſes of fortune in regard to his circumſtances, but generally changing for the worſe, he at laſt died wretchedly in a public houſe on Tower-hill; whither, it is ſuppoſed, he had retired, in order to avoid the preſſure of his creditors. Some have ſaid, that downright hunger compelling him to fall too eagerly on a piece of bread, of which he had been for ſome time in want, the firſt mouthful choked him, and inſtantly put a period to his days. Dr Johnſon gives this account of the matter: "He died in a manner which I am unwilling to mention. Having been compelled by his neceſſities to contract debts, and hunted, as is ſuppoſed by the terriers of the law, he retired to a public houſe on Tower-hill, where he died of want; or, as it is related by one of his biographers, by ſwallowing, after a long faſt, a piece of bread which charity had ſupplied. He went out, as is reported, almoſt naked, in the rage of hunger, and finding a gentleman in a neighbouring coffee-houſe, aſked him for a ſhilling. The gentleman gave him a guinea; and Otway going away bought a roll, and was choked with the firſt mouthful. All this, I hope, is not true; but that indigence, and its concomitants, ſorrow and deſpondency, brought him to the grave, has never been denied."

Otway || Ovation.

Johnſon ſpeaks of him in nearly theſe terms: Otway had not much cultivated verſification, nor much repleniſhed his mind with general knowledge. His principal power was in moving the paſſions, to which Dryden in his latter years left an illuſtrious teſtimony. He appears, by ſome of his verſes, to have been a zealous royaliſt; and had what was in thoſe times the common reward of loyalty; he lived and died neglected.—His dramatic writings are nine in number; the moſt admired of which are, *The Orphan*, and *Venice Preſerved*. He had alſo made ſome tranſlations, and wrote ſeveral miſcellaneous poems. His whole works are printed in two pocket volumes. He wrote four acts of a play which are loſt.

OVAL, an oblong curvilinear figure, otherwiſe called *ellipſis*. (See ELLIPSIS). However, the proper oval, or egg ſhape, differs conſiderably from that of the ellipſis, being an irregular figure, narrower at one end than at another: whereas the ellipſis or mathematical oval, is equally broad at each end: though it muſt be owned, theſe two are commonly confounded together; even geometricians calling the oval a *falſe ellipſis*.

OVARY, in *Anatomy*, that part of a female animal wherein the ova or eggs are formed or lodged. See ANATOMY, N° III.

OVARIUM, in *Botany*, a name by which botaniſts who are fond of aſſimilating the animal and vegetable kingdoms have diſtinguiſhed the germen or ſeed bud, as containing the rudiments of the future ſeed.

OVATION, in the Roman antiquity, a leſſer triumph, allowed to commanders for victories won without the effuſion of blood; or for defeating a mean and inconſiderable enemy. The ſhow generally began at the Albanian mountain, whence the general with his retinue

Oude || Overall.

retinue made his entry into the city on foot, with many flutes or pipes ſounding in concert as he paſſed along, and wearing a garland or myrtle as a token of peace. The term *ovation*, according to Servius, is derived from *ovis*, a "ſheep;" becauſe on this occaſion the conqueror ſacrificed a ſheep, as in triumph he ſacrificed a bull. The ſenate, knights, and principal plebeians, aſſiſted at the proceſſion; which concluded at the Capitol, where rams were ſacrificed to Jupiter. The firſt ovation was granted to Publius Poſthumius the conſul, for his victory over the Sabines in the 253d year of Rome.

OUDE, a province of Hindoſtan Proper, ſubject to a nabob, whoſe dominions lie on both ſides of the Ganges, occupying the flat country between that river and the northern mountains, as well as the principal part of that fertile tract, lying between the Ganges and Jumna, known by the name of Dooab, to within 40 miles of the city Delhi. Oude and its dependencies are computed at about 360 miles long from eaſt to weſt, and 180 broad. A brigade of the Bengal army is conſtantly ſtationed on the weſtern frontier, anſwering the double purpoſe of covering both Oude and Bengal; in conſideration of which the nabob pays an annual ſubſidy of 420,000l. ſterling. The capital of the province is Lucknow. Oude is alſo the name of a city in the above province, ſaid to have been the principal city of Hindoſtan about 1200 years before the Chriſtian era.

OUDENARDE, a rich and ſtrong town of the Auſtrian Netherlands, in the province of Flanders, in E. Long. 3. 30. N. Lat. 50. 54. fifteen miles ſouth of Ghent, and eighteen from Tournay. It is a large well fortified town, having a very conſiderable fort in the middle of it, ſituated on the river Scheldt, which divides it into two parts. It is almoſt encompaſſed by meadows, only there is a hill which commands it on the ſouth ſide. The buildings are pretty good, and the ſtreets wide and handſome. The market-place is adorned with a beautiful town-houſe, and a fine large fountain. There are ſeveral good churches and monaſteries well worthy of the notice of travellers. The town has a very flouriſhing trade in fine linen and tapeſtry, and is the capital of a caſtellany, which contains 33 villages. The French laid ſiege to it in 1708, which brought on an obſtinate engagement, wherein they were defeated by the allies under the command of the duke of Marlborough. It was beſieged by the French again in 1744, and taken in a few days; but it was reſtored at the general peace.

OVEN, a kind of domeſtic furnace, uſed for baking bread, pies, tarts, &c. of a circular ſtructure, with a very low roof, well lined, both on the top, bottom, and ſides, with ſtone; it has a ſmall entrance in the front, which is exactly fitted by a kind of door, which being clapped to the mouth of the oven confines the heat, while bread, pies, or puddings, are baking. Over this, paſtry cooks, &c. have another oven built much in the ſame manner, which is uſed for ſuch things as require a leſs degree of heat. Ovens are heated by burning dry wood, faggots, &c. in them, till all the parts are equally hot.

OVERALL, JOHN, a celebrated Engliſh biſhop, was born in 1559; and, after a proper foundation in grammar learning, was ſent to St John's college, Cambridge, and was elected a ſcholar of that ſociety: but afterwards removing to Trinity, was choſen fellow of that college. In 1596 he was made regius profeſſor of divinity, when he took the degree of D. D. and about the ſame time was elected maſter of Catherine-hall. In 1601 he was raiſed to the deanery of St Paul's, London, by the recommendation of his patron Sir Fulk Greville, and Queen Elizabeth; and in the beginning of King James's reign, he was choſen prolocutor of the lower houſe of convocation. In 1612 he was appointed one of the firſt governors of the Charter-houſe hoſpital, then juſt founded by Thomas Sutton, Eſq. In April 1614 he was made biſhop of Litchfield and Coventry; and in 1618 he was tranſlated to Norwich, where he died in May 1619, aged, as it is reported, 60 years. He was buried in that cathedral, where he lay unnoticed and forgotten till ſome time after the reſtoration of Charles II. when Coſin, biſhop of Durham, who had been his ſecretary, erected a monument in 1669, with a Latin inſcription, in which he is ſaid to be, "Vir undequaque doctiſſimus, et omni incomio major." Overall

Wood obſerves, that he had the character of being the beſt ſcholaſtic divine in England; and Coſin, who perhaps may be thought to rival him in that ſort of learning, calls himſelf his ſcholar, and abſolutely ſays that he derived all his knowledge from him. He is alſo celebrated by Smith for his diſtinguiſhed wiſdom, erudition, and piety. In the controverſy which in his time divided the reformed churches about predeſtination and grace, he held a middle opinion, inclining perhaps to Arminianiſm. He ſeems indeed to have paved the way for the reception of that doctrine in England, where it was generally embraced a few years afterwards, chiefly by the authority and influence of Archbiſhop Laud. Overall cultivated a particular friendſhip with Gerard Voſſius and Grotius; and was much grieved to ſee the love of peace, and the projects of this laſt great man to obtain it, ſo ill repaid. He laboured heartily himſelf to ſettle the differences in Holland, upon what is known by the name of the *Quinquarticular controverſy;* as appears in part by his letters to the two learned correſpondents juſt mentioned, ſome of which are printed in the *Epiſtolæ præſtantium virorum*, &c.

The biſhop is known in England chiefly by his *Convocation Book*, of which Biſhop Burnet gives the following account: "This book was wrote on the ſubject of government, the divine inſtitution of which was very poſitively aſſerted. It was read in convocation, and paſſed by that body, in order to the publiſhing of it; in oppoſition to the principles laid down in the famous book of Parſons the Jeſuit, publiſhed under the name of *Doleman*. But King James did not like a convocation entering into ſuch a theory of politics; ſo he diſcouraged the printing of it, eſpecially ſince, in order to juſtify the owning of the United Provinces, who had lately thrown off the Spaniſh yoke, to be a lawful government, it was laid down, that when a change of government was brought to a thorough ſettlement, it was then to be owned and ſubmitted to as work of the providence of God. Here it ſlept, till Archbiſhop Sancroft, who had got the book into his own hands, and not obſerving the laſt-mentioned paſſage in it, reſolved to publiſh it in the beginning of King William's reign, as an authentic declaration the church of England had made in the

Overbury. point of non-reſiſtance. Accordingly it was publiſhed in 4to, as well as licenſed, by him, a very few days before he was under ſuſpenſion for not taking the oaths."

OVERBURY, Sir Thomas, a learned Engliſhman, was born in 1581; and ſtudied at Queen's college, Oxford, after which he removed to the Middle-Temple, London. He afterwards travelled for ſome time, and returned a moſt accompliſhed perſon; when he contracted an intimate acquaintance with Sir Robert Carr, knight of the Bath, who being ſoon after taken into his majeſty's favour, had Mr Overbury knighted at Greenwich. Sir Thomas perceiving the familiarity which ſubſiſted between his patron Carr, now made Viſcount Rocheſter, and the lady Frances, the wife of Robert earl of Eſſex, was ſo much diſpleaſed at it, that he endeavoured to diſſuade him from keeping her company, and from proceeding in the baſe deſign he had formed of having her firſt divorced from her huſband, and then marrying her. The viſcount, reſenting this honeſt advice, told what he had ſaid to the lady, who was as remarkable for her wickedneſs as for her beauty; on which they immediately reſolved on his deſtruction. About this time, the king wanting to ſend an ambaſſador abroad, the viſcount recommended Sir Thomas Overbury. His majeſty approving the choice, the viſcount imparted the king's intentions to Sir Thomas; but, under a treacherous ſhow of friendſhip, diſſuaded him from accepting of that employment, as it might hinder him from a better way of advancement; promiſing that he would prevent his majeſty from being diſpleaſed at his refuſal. The viſcount then went to the king, and artfully incenſing his majeſty againſt Sir Thomas for refuſing to obey his commands, that gentleman was committed to the Tower for his contempt, on the 21ſt of April 1613, where he continued till he was deſpatched by poiſon on the 15th of September following, and his body was interred in the Tower-chapel the ſame day. About two years after, the whole contrivance of his death was diſcovered. On this ſeveral perſons were condemned and executed; but though Carr, earl of Somerſet, and the lady Frances his counteſs, were condemned to death for contriving the murder, and hiring the perſons who were concerned in it, the king only baniſhed them from court, and afterwards pardoned them. Sir Thomas Overbury wrote ſeveral poems, &c. and an account of his travels.

His character is repreſented by a hiſtorian of thoſe times; who, after relating the occaſion and circumſtances of his death, proceeds in the following terms: "In this manner fell Sir Thomas Overbury, worthy of a longer life and a better fate; and, if I may compare private men with princes, like Germanicus Cæſar, both by poiſon procured by the malice of a woman, both about the 33d year of their age, and both celebrated for their ſkill and judgement in poetry, their learning, and their wiſdom. Overbury was a gentleman of an ancient family, but had ſome blemiſhes charged upon his character, either through a too great ambition, or the inſolence of a haughty temper.—— After the return from his travels, the viſcount Rocheſter embraced him with ſo entire a friendſhip, that exerciſing by his majeſty's ſpecial favour the office of ſecretary proviſionally, he not only communicated to Sir Thomas the ſecrets, but many times gave him the packets and letters unopened, before they had been peruſed by the king himſelf: which as it prevailed too much upon his early years, ſo as to make him, in the opinion of ſome, thought high and ambitious; yet he was ſo far from violating his truſt and confidence, that he remains now one example among others who have ſuffered in their perſons or their fortunes for a freedom of advice, which none but ſincere friends will give, and which many are ſuch ill friends to themſelves as not to receive." Over-hauling || Oviedo.

OVER-HAULING, the act of opening and extending the ſeveral parts of a tackle, or other aſſemblage of ropes, communicating with blocks or dead eyes. It is uſed to remove thoſe blocks to a ſufficient diſtance from each other, that they may be again placed in a ſtate of action, ſo as to produce the effect required.

Over-Hauling, is alſo vulgarly expreſſed of an examination or inſpection into the condition of a perſon or thing.

Over-Rake, among ſeamen: When a ſhip riding at anchor ſo overbeats herſelf into a high ſea, that ſhe is waſhed by the waves breaking in upon her, they ſay the waves over-rake her.

OVERSMAN, in *Scots Law*, a perſon appointed by arbiters, or by the parties ſubmitters, to determine the matter ſubmitted, in caſe the arbiters diſagree in their opinion.

OVERT, the ſame with Open: Thus an overt act ſignifies an act which, in law, muſt be clearly proved; and ſuch is to be alleged in every indictment for high treaſon.

OVERTURE, or Ouverture, opening or preluding: a term uſed for the ſolemnities at the beginning of a public act or ceremony; an opera, tragedy, comedy, concert of muſic, &c. The overture of the theatre or ſcene, is a piece of muſic uſually ending with a fugue: the overture of a jubilee is a general proceſſion, &c.

OVERYSSEL, ſo named from its ſituation beyond the river Yſſel, one of the Seven United Provinces; bounded on the eaſt by the biſhopric of Munſter, on the north by Frieſland and the territory of Groningen, on the weſt by the river Yſſel, and on the ſouth by the county of Zutphen and the biſhopric of Munſter. It is divided into three diſtinct parts; which are the territories of Drenſe, Twente, and Salland. There are many moraſſes in this province, and but few inhabitants, in compariſon of the reſt. Its greateſt riches conſiſt in turfs; which are dug up here, and ſent to the neighbouring provinces, particularly Holland. It extends near 60 miles in length from north to ſouth, and 40 in breadth from eaſt to weſt. The whole country is low and marſhy, but it produces a tolerable quantity of corn. It was formerly a dependance of the biſhopric of Utrecht, before Henry of Bavaria, biſhop of that ſee, transferred the ſovereignty of it to the emperor Charles V.

OVIEDA, a genus of the angioſpermia order, belonging to the didynamia claſs of plants; and in the natural method ranking under the 40th order, *Perſonatæ*. See Botany *Index*.

OVIEDO, a town of Spain, and capital of Aſturias d'Oviedo, with a biſhop's ſee, and an univerſity; ſeated at the confluence of the rivers Ove and Deva, which

Oughtred, Ovid.

which form the Aſta, 50 miles north-weſt of Leon, and 208 north-weſt of Madrid. W. Long. 5. 47. N. Lat. 43. 23.

OUGHTRED, WILLIAM, an eminent mathematician, was born at Eton in 1573, and educated in the ſchool there, whence he was elected to King's-college in Cambridge, of which he afterwards became fellow. Being admitted to holy orders, he left the univerſity about the year 1603, and was preſented to the rectory of Aldbury, near Guildford in Surry; and about the year 1628 was appointed by the earl of Arundel to inſtruct his ſon in the mathematics. He kept a correſpondence by letters with ſome of the moſt eminent ſcholars of his time upon mathematical ſubjects; and the moſt celebrated mathematicians of that age owed moſt of their ſkill to him, whoſe houſe was full of young gentlemen that came from all parts to receive his inſtruction. It is ſaid that, upon hearing the news of the vote at Weſtminſter for the reſtoration of King Charles II. he expired in a ſudden tranſport of joy, aged 88. He wrote, 1. *Clavis Mathematica;* which was afterwards publiſhed in England. 2. A deſcription of the double horizontal dial. 3. *Opuſcula Mathematica;* and ſeveral other works. He left alſo behind him a great number of papers upon mathematical ſubjects, which are now in the muſeum of William Jones, Eſq. F. R. S.

David Lloyd, in his Memoirs, has given the following ſhort character of him: "That he was as facetious in Greek and Latin, as ſolid in arithmetic, geometry, and the ſphere of all meaſures, muſic, &c. exact in his ſtyle as in his judgement; handling his tube and other inſtruments at 80 as ſteadily as others did at 30; owing this, as he ſaid, to temperance and archery; principling his people with plain and ſolid truths, as he did the world with great and uſeful arts; advancing new inventions in all things but religion, which, in its old order and decency, he maintained ſecure in his privacy, prudence, meekneſs, ſimplicity, reſolution, patience, and contentment." He had one ſon; whom he put an apprentice to a watchmaker, and wrote a book of inſtructions in that art for his uſe.

OVID, or *Publius OVIDIUS Naſo*, a celebrated Latin poet of the Auguſtan age, was a Roman knight, born at Sulmo, in the 43d year before the Chriſtian era. He ſtudied rhetoric under Aurelius Fuſcus, and for ſome time frequented the bar. His progreſs in the ſtudy of eloquence was great, but the father's expectations were fruſtrated; his ſon was born a poet, and nothing could deter him from purſuing his natural inclination to write poetry, though he was often reminded that Homer lived and died in the greateſt poverty. Every thing he wrote was expreſſed in poetical numbers, as he himſelf ſays, *Et quod tentabam ſcribere verſus erat:* A lively genius and a fertile imagination ſoon gained him admirers; the learned became his friends: Virgil, Propertius, Tibullus, and Horace, honoured him with their correſpondence, and Auguſtus patronized him with the moſt unbounded liberality. Theſe favours, however, were but momentary; for after having obtained the eſteem of Auguſtus, he incurred his diſpleaſure, and was baniſhed to Tomos, a city on the Pontus Euxinus, near the mouth of the Danube, when he was 50 years of age. The true cauſe of this ſudden exile is unknown. Some attribute it to a ſhameful amour with Livia the wife of Auguſtus, while others ſuppoſe that it aroſe from the knowledge which Ovid had of the unpardonable inceſt of the emperor with his daughter Julia. Theſe reaſons are indeed merely conjectural; the cauſe was of a very private and very ſecret nature, of which Ovid himſelf is afraid to ſpeak. It was, however, ſomething improper in the family and court of Auguſtus, as theſe lines ſeem to indicate: Ovid.

Cur aliquid vidi? Cur noxia lumina feci?
Cur imprudenti cognita culpa mihi eſt?
Inſcius Actæon vidit ſine veſte Dianam,
Præda fuit canibus non minus ille ſuis.

Again,

Inſcia quod crimen viderunt lumina plector,
Peccatumque oculos eſt habuiſſe meum.

And in another place,

Perdiderunt cum me duo crimina, carmen et error,
Alterius facti culpa ſilenda mihi eſt.

In his baniſhment, Ovid betrayed his puſillanimity in a great degree; and however affected and diſtreſſed his ſituation was, yet the flattery and impatience which he ſhowed in his writings are a diſgrace to his pen, and lay him more open to ridicule than to pity. Though he proſtituted his pen and his time to adulation, yet the emperor proved deaf to all entreaties, and refuſed to liſten to his moſt ardent friends at Rome who wiſhed for his return. Ovid, who really wiſhed for a Brutus to deliver Rome of her tyrannical Auguſtus, ſtill continued his flattery even to meanneſs; and when the emperor died, he was ſo mercenary as to conſecrate a ſmall temple to the departed tyrant on the ſhore of the Euxine, where he regularly offered frankincenſe every morning. Tiberius proved as regardleſs as his predeceſſor to the entreaties which were made for the poet, and he died in the ſeventh or eighth year of his baniſhment, in the 57th year of his age. He was buried at Tomos. In the year 1508 of the Chriſtian era, the following epitaph was diſcovered at Stain, in the modern kingdom of Auſtria.

Hic ſitus eſt vates quem Divi Cæſaris ira,
Auguſti patria cedere juſſit humo.
Sæpe miſer voluit patriis occumbere terris,
Sed fruſtra! hunc illi fata dedere locum.

This, however, is an impoſition to render celebrated an obſcure corner of the world, which never contained the bones of Ovid. The greateſt part of his poems are remaining. His *Metaphorphoſes*, in 15 books, are extremely curious, on account of the great variety of mythological facts and traditions which they relate, but they can have no claim to epic honours. In compoſing this the poet was more indebted to the exiſting traditions, and to the theogony of the ancients, than the powers of his own imagination. His *Faſti* were divided into 12 books, like the conſtellations in the zodiac, but of theſe ſix are loſt; and the learned world have reaſon to lament the loſs of a poem which muſt have thrown ſo much light upon the religious rites and ceremonies, feſtivals and ſacrifices, of the ancient Romans, as we may judge from the ſix that have ſurvived the ravages of time and barbarity. His *Triſtia*,

Ovid, Oviedo.

tia, which are divided into five books, contain much elegance and ſoftneſs of expreſſion; as alſo his *Elegies* on different ſubjects. The *Heroides* are nervous, ſpirited, and diffuſe; the poetry is excellent, the language varied, but the expreſſions are often too wanton and indelicate; a fault which is very common with him. His three books *Amorum*, and the ſame number *de Arte Amandi*, with the other *de Remedio Amoris*, are written with peculiar elegance, and contain many flowery deſcriptions; but the doctrine which they hold forth is dangerous, and they are to be read with caution, as they ſeem to be calculated to corrupt the heart, and to ſap the very foundations of virtue and morality. His *Ibis*, which is written in imitation of a poem of Callimachus of the ſame name, is a ſatirical performance. Beſides theſe, there are extant ſome fragments of other poems, and among theſe part of a tragedy called *Medea*. The talents of Ovid as a dramatic writer have been diſputed, and ſome have remarked that he who is ſo often void of ſentiment was not born to ſhine as a tragedian. He has attempted, perhaps, too many ſorts of poetry at once. On whatever he has written, he has totally exhauſted the ſubject. He everywhere paints nature with a maſterly hand, and adds ſtrength even to vulgar expreſſions. It has been judiciouſly obſerved, that his poetry after his baniſhment from Rome was deſtitute of that ſpirit and vivacity which we admire in thoſe which were written before. His *Faſti* are perhaps the beſt written of all his poems; and after them we may fairly rank his love verſes, his *Heroides*, and after all his *Metamorphoſes*, which were not totally finiſhed when Auguſtus baniſhed him. His *Epiſtles from Pontus* are the language of a weak and ſordid flatterer. However critics may have cauſe to cenſure the indelicacy and the inaccuracies of Ovid, it is to be acknowledged that his poetry contains great ſweetneſs and elegance, and, like that of Tibullus, charms the ear and captivates the mind.—Another perſon of the name of OVID accompanied his friend Cæſonius when baniſhed from Rome by Nero.

OVIEDO, JOHN GONSALVEZ DE, born at Madrid about the year 1478, was educated among the pages of Ferdinand king of Arragon and Iſabella queen of Caſtile; and happened to be at Barcelona in 1493, when Chriſtopher Columbus returned from his firſt voyage to the iſland Haiti, which he called Hiſpaniola, and which now goes by the name of St Domingo. He formed an intimate acquaintance with Columbus and his companions, and was at pains to inform himſelf of every thing relating to the new diſcoveries. He rendered ſuch eſſential ſervice to Spain during the war of Naples, that Ferdinand determined to ſend him to the iſland of Haiti, as intendant and inſpector general of the trade of the New World. The ravages which the venereal diſeaſe had made during that war, induced him to inquire into what were the moſt efficacious remedies for this malady, which was ſuppoſed to have come from the Weſt Indies. His inquiries were extended to every thing which regards the natural hiſtory of theſe regions; and, on his return to Spain, he publiſhed *Summario de la Hiſtoria general y natural de las Indias Occidentales*, which he dedicated to Charles V. He afterwards made ſome additions to this work, which he publiſhed under the title of *La Hiſtoria general y natural de las Indias Occidentales*; Salamanca, 1535, folio. It was tranſlated into Italian, and afterwards into French; Paris, 1556, folio. In this work, Oviedo ſays that the French pox is endemical in the iſland of Haiti, and that it has paſſed from thence into Europe. He greatly extols the uſe of the wood of guaiacum for the cure of this diſeaſe; but whether the diſeaſe is now become more obſtinate, or the remedy does not poſſeſs that efficacy which is aſcribed to it, it is at preſent in little eſtimation.

Ovilia; Ou-poey-tſe.

OVILIA, or SEPTA, in ancient Rome, a place in the Campus Martius, at firſt railed in like a ſheep-pen, whence its name. Afterwards it was mounted with marble, and beautified with walks and galleries, as alſo with a tribunal, or ſeat of juſtice. Within this precinct or incloſure the people were called to give their ſuffrages for the election of magiſtrates. The aſcent into the ovilia was not by ſtairs, but by pontes, or narrow boards, laid there for the occaſion; on which account, *de ponte dejici* ſignified "to be deprived of the privilege of voting;" and perſons thus dealt with were called *depontani*.

OVIPAROUS, a term applied to ſuch animals as bring forth their young from eggs; as birds, inſects, &c.

OVIS, the SHEEP, a genus of the mammalia claſs, and of the order of Pecora. See MAMMALIA *Index*.

OUNCE, a weight, the 16th part of a pound avoirdupois, and the 12th part of a pound troy. The word is derived from the Latin, *uncia*, "the twelfth part of any whole," called *as*; particularly in geometrical meaſures, an inch, or 12th part of a foot. See INCH and AS.

OUNCE. See FELIS, MAMMALIA *Index*.

OVOLO, or OVUM, in *Architecture*, a round moulding, whoſe profile or ſweep, in the Ionic and Compoſite capitals, is uſually a quadrant of a circle: whence it is alſo commonly called the *quarter-round*. It is uſually cut with repreſentations of eggs and arrow-heads or anchors placed alternately.

OU-POEY-TSE, a name given by the Chineſe to a kind of neſts made by certain inſects upon the leaves and branches of the tree called *yen-ſou-tſe*. Theſe neſts are much uſed in dyeing, and the phyſicians employ them for curing many diſtempers. Some of theſe neſts were brought to Europe, and put into the hands of the celebrated Mr Geoffroy. After having examined them with the utmoſt attention, this learned academician thought he perceived ſome conformity in them to thoſe excreſcences which grow on the leaves of the elm, and which the vulgar call *elm-bladders*: he found theſe neſts ſo ſharp and aſtringent to the taſte, that he conſidered them as far ſuperior to every other ſpecies of galls uſed by the dyers. According to him, they are the ſtrongeſt aſtringents exiſting in the vegetable kingdom.

It is certain that there is a great affinity between the ou-poey-tſe and the elm-bladders. The form of both is unequal and irregular; they are covered on the outſide with a ſhort down, which renders them ſoft to the touch; within they are full of a whitiſh-grey duſt, in which may be obſerved the dried remains of ſmall inſects, without diſcovering any aperture through which they might have paſſed. Theſe neſts or bladders harden as they grow old; and their ſubſtance, which appears reſinous, becomes brittle and tranſparent; however, the Chineſe do not

Ouſe, Ouſter.

not conſider the ou-poey-tſe, notwithſtanding their reſemblance to elm-bladders, as excreſcences of the tree yen-fou-tſe, upon which they are found. They are perſuaded, that inſects produce a kind of wax, and conſtruct for themſelves on the branches and leaves of this tree (the ſap of which is proper for their nouriſhment) little retreats, where they may wait for the time of their metamorphoſis, or at leaſt depoſit in ſafety their eggs, which compoſe that fine duſt with which the ou-poey-tſe are filled. Some of the ou-poey-tſe are as large as one's fiſt; but theſe are rare, and are generally produced by a worm of extraordinary ſtrength, or which has aſſociated with another, as two ſilk worms are ſometimes ſeen ſhut up in the ſame ball. The ſmalleſt ou-poey-tſe are of the ſize of a cheſnut; the greater part of them are round and oblong; but they ſeldom reſemble one another entirely in their exterior configuration. At firſt, they are of a dark green colour, which afterwards changes to yellow; and the huſk, though pretty firm, becomes then very brittle.

The Chineſe peaſants collect theſe ou-poey-tſe before the firſt hoar-froſts. They take care to kill the worm incloſed in the huſks, and to expoſe them for ſome time to the ſteam of boiling water. Without this precaution, the worm might ſoon break through its weak priſon, which would immediately burſt and be uſeleſs. The ou-poey-tſe are uſed at Pekin for giving paper a durable and deep-black colour; in the provinces of Kiang-nan and Tche-kiang, where a great deal of beautiful ſatin is made, they are employed for dyeing the ſilk before it is put on the loom. The Chineſe literati alſo blacken their beards with them when they become white.

The medicinal properties of the ou-poey-tſe are very numerous. The Chineſe phyſicians introduce them into the compoſition of many of their remedies. They recommend them for ſtopping bloodings of every kind; they conſider them as an excellent ſpecific for curing inflammations and ulcers, and for counteracting the effects of poiſon; and they employ them with ſucceſs in the dropſy, phthiſis, epilepſy, catarrhs, ſickneſs, fluxions of the eyes and ears, and in many other diſorders.

GREATER OUSE, a river which riſes near Fitwell in Oxfordſhire, and proceeds to Buckingham, Stony-Stratford, and Newport-Pagnel, in Buckinghamſhire; from thence it proceeds to Bedford, and turning north-eaſt it paſſes on to Huntingdon and Ely, till at length it arrives at Lynn-Regis in Norfolk, and falls into the ſea. It is navigable to ſome diſtance above Downham, where there is a good harbour for barges; and a conſiderable trade is carried on by it to Lynn and other towns.

Smaller OUSE, riſes in Suffolk, and, ſeparating that county from Norfolk on the ſouth-weſt, diſcharges itſelf into the great Ouſe near Downham. There is ſtill another of the ſame name which riſes in the weſt-north-weſt ſide of Yorkſhire; and chiefly running to the ſouth-eaſt, at length falls into the Humber.

OUSTER, or DISPOSSESSION, in *Law*, an injury which carries with it the amotion of poſſeſſion; for by means of it the wrong doer gets into the actual poſſeſſion of the land or hereditament, and obliges him that hath a right to ſeek a legal remedy, in order to gain poſſeſſion, together with damages. This ouſter may either be of the freehold by abatement, intruſion, diſſeiſin, diſcontinuance, and deforcement; or of chattels real, as an eſtate by ſtatute-merchant, ſtatute-ſtaple, or elegit, or an eſtate for years.

Ouſter le Main ‖ Outlawry.

OUSTER le Main, *amovere manum*, in *Law*, denotes a livery of lands out of the king's hands; or a judgement given for him that traverſed, or ſued, a *monſtrans le droit*. When it appeared, upon the matter being diſcuſſed, that the king had no right or title to the land ſeized, judgment was given in chancery, that the king's hand be amoved; and *ouſter le main*, or *amoveas manum*, was therefore awarded to the eſcheator, to reſtore the land, &c. All wardſhips, liveries, *ouſter le mains*, &c. are now taken away and diſcharged by ſtatute 12. Car. II.

OUSTIOUG, a town of the Ruſſian empire, and capital of a province of the ſame name, with an archbiſhop's ſee and a caſtle; ſeated on the river Suchan, over-againſt the mouth of the Jug, in E. Long. 43. 25. N. Lat 61. 48.

OUSTIOUG, a province of the Ruſſian empire, bounded on the north by Dwina, on the eaſt by the foreſt of Zirani, on the ſouth by Wologda, and on the weſt by Cargapol and Waga. It is divided into two parts by the river Suchana; is full of foreſts; and the rivers yield plenty of fiſh, which the inhabitants dry in the ſun, and which make their principal nouriſhment.

OUT-POSTS, in a military ſenſe, a body of men poſted beyond the grand guard, called *out-poſts*, as being the rounds or limits of the camp.

OUTLAW, ſignifies one that is deprived of the benefit of the law, and therefore held to be out of the king's protection.

Bracton aſſerts, that an outlaw forfeits all he has; and that, from the time of his outlawry, he wears a wolf's head; and any body may kill him with impunity, eſpecially if he defend himſelf or fly. But in Edward III.'s time it was reſolved by the judges, that it ſhould not be lawful for any man, but the ſheriff alone (having ſufficient warrant for it), to put to death a man that was outlawed.

OUTLAWRY, the puniſhment of a perſon who being called into law, and lawfully, according to the uſual forms, ſought, does contemptuouſly refuſe to appear.

The effect of being outlawed at the ſuit of another, in a civil cauſe, is the forfeiture of all the perſon's goods and chattels to the king, and the profits of his land, while the outlawry remains in force. If in treaſon or felony, all the lands and tenements which he has in fee, or for life, and all his goods and chattels, are alſo forfeited; and beſides, the law interprets his abſence as a ſufficient evidence of guilt; and without requiring farther proof, accounts the perſon guilty of the fact, on which enſues corruption of blood, &c. And then, according to Bracton, he may periſh without law, &c. However, to avoid inhumanity, no man is intitled to kill him wantonly or wilfully; but in ſo doing he is guilty of murder, unleſs it happens in endeavouring to apprehend him; for any body may arreſt an outlaw, either of his own head, or by writ or warrant of *capias utlagatum*, in order to bring him to execution.

If after outlawry, in civil caſes, the defendant publicly appear, he is to be arreſted by a writ of *capias utlagatum*, and committed till the outlawry be reverſed: which reverſal may be had by the defendant's appearing in court (and in the king's-bench, by ſending an attorney, according to ſtatute 4 and 5 W. and M. cap. 18.)

and

Ovum Anguinum || Owen.

and any plauſible circumſtance, however trifling, is in general ſufficient to reverſe it; it being conſidered only as a proceſs to force appearance. The defendant muſt, however, pay full coſts, and muſt put the plaintiff in the ſame condition as if he had appeared before the writ of *exigi facias* was awarded. It is appointed by magna charta, that no freeman ſhall be outlawed, but according to the law of the iand. A minor or a woman cannot be outlawed.

In Scotland outlawry anciently took place in the caſe of refuſal to fulfil a civil obligation, as well as in criminal caſes. At preſent, however, it only takes place in the two caſes of flying from a criminal proſecution, and of appearing in court attended by too great a number of followers. But the defender, upon appearing at any diſtance of time and offering to ſtand trial, is entitled *de jure* to have the outlawry reverſed, and to be admitted to trial accordingly, and even to bail if the offence be bailable. See WAIVE.

OVUM ANGUINUM. See ANGUINUM.

OUTWORKS, in *Fortification*, all thoſe works made without-ſide the ditch of a fortified place, to cover and defend it. See FORTIFICATION.

OUSEL, a ſpecies of MOTACILLA. See ORNITHOLOGY *Index*.

OWEN, THOMAS, a judge of the common-pleas, ſon of Richard Owen, Eſq. of Condover in Shropſhire, was educated at Oxford. Having taken a degree in arts, he left the univerſity, and entered himſelf of Lincoln's inn in London, where in proceſs of time he became an eminent counſellor. In 1583 he was elected Lent-reader to that ſociety. In 1590 he was made ſergeant at law, and queen's ſergeant ſoon after. He arrived at length at the dignity of judge of the common pleas; which office he is ſaid to have executed, during five years, with great abilities and integrity. He died in 1598; and was buried on the ſouth ſide of the choir in Weſtminſter abbey, where a monument was erected to his memory. He had the reputation of a learned man, and a patron of literature. He was the author of "Reports in the common pleas, wherein are many choice caſes, moſt of them thoroughly argued by the learned ſergeants, and after argued and reſolved by the grave judges of thoſe times, with many caſes wherein the difference of the year-books are reconciled and explained." Lond. 1656, folio.

OWEN, *Dr John*, an eminent and learned diſſenting miniſter, was born in 1616, at Hadham, in Oxfordſhire, of which place his father was vicar. He made ſuch ſurpriſing proficiency in learning, that at twelve years of age he was admitted into Queen's-college, Oxford, and in 1635 was made maſter of arts: but ſoon after, diſapproving the new regulations made by Archbiſhop Laud their chancellor, with which he refuſed to comply, he was obliged, in 1637, to leave the univerſity; when, taking orders, he became chaplain to Sir Robert Dormer of Aſcot in Oxfordſhire, and was at the ſame time tutor to his eldeſt ſon. He was afterwards chaplain to John Lord Lovelace of Hurley in Berkſhire; when the civil war broke out, he openly avowed the cauſe of the parliament; which was ſo reſented by an uncle, who had intended to leave him his eſtate, that he diſcarded him, and left it to another. Yet though Lord Lovelace joined the king, he treated his chaplain with great civility: but on his taking the field with the royal army, Mr Owen went to London, and ſoon after joined the non-conformiſts. In 1642 he publiſhed his book, intitled, *A Diſplay of Arminianiſm*, which laid the foundation of his future advancement: for the committee for purging the church of ſcandalous miniſters were ſo pleaſed with it, that Mr White their chairman ſent him a preſentation of the living of Fordham in Eſſex: but when he had been there about a year and a half, the patron hearing that the ſequeſtered incumbent was dead, preſented another to the living; upon which the earl of Warwick gave Mr Owen the living of Coggeſhal. He had not, however, been long at that town before he left the Preſbyterians; and, joining the Independents, formed a church there. He was now ſent for ſeveral times to preach before the parliament; and among the reſt on the 28th of February 1648-9, the day of humiliation for the intended expedition to Ireland. Cromwell, who was preſent at this laſt diſcourſe, and had never heard him before, was extremely pleaſed with it, and deſired his company into Ireland, and that he would reſide in the college of Dublin. This he did; but returned in about half a year. Soon after Cromwell ſent him into Scotland; but he alſo returned from thence after about half a year's ſtay at Edinburgh. He was then promoted to the deanery of Chriſt-church, Oxford, whither he went in 1651; and Cromwell, being now chancellor of the univerſity, nominated him his vice-chancellor. The next year he was created doctor of divinity by diploma. Dr Owen enjoyed the poſt of vice chancellor five years; during which he behaved with the greateſt moderation; for, though often ſolicited, he never moleſted the meeting of the royaliſts at the houſe of Dr Willis the phyſician, where divine ſervice was performed according to the liturgy of the church of England: and though he was a commiſſioner for ejecting ſcandalous miniſters, he frequently overruled his brethren in favour of thoſe royaliſts who were diſtinguiſhed by their merit. At the death of Cromwell, he was removed from the vice-chancellorſhip; and at the Reſtoration was ejected from his deanery of Chriſt-church. But he had provided himſelf a comfortable retreat at an eſtate he had purchaſed at Hadham. He now employed himſelf in preaching as often as he had an opportunity, and in writing books; one of which, intitled *Fiat Lux*, falling into the hands of Lord Clarendon, he was ſo pleaſed with it, or (as is ſaid) from policy pretended to be ſo, that he ſent for Dr Owen, and acknowledging the ſervice he had done by it to the Proteſtant religion, offered to preſer him in the church if he would conform; but he deſired to be excuſed.—His moderation drew him reſpect from perſons of oppoſite principles; and in the number of his friends were Dr Wilkins biſhop of Cheſter, and Dr Barlow biſhop of London. He died at Ealing in 1683. His works are printed in ſeven volumes folio.

Owen, Owhyhee.

Wood, after cenſuring him in many reſpects, ſays nevertheleſs, that, "to ſpeak impartially, he was a perſon well ſkilled in the tongues, Rabbinical learning, and Jewiſh rites and cuſtoms; that he had a great command of his Engliſh pen, and was one of the genteeleſt and faireſt writers who have appeared againſt the church of England."

OWHYHEE, the eaſternmoſt, and by far the largeſt, of the Sandwich iſlands. Its greateſt length from north to ſouth is 28½ leagues, its breadth 24, and its

Owhyhee circumference nearly 300 Engliſh miles. It is divided into ſix large diſtricts; two of which on the north-eaſt ſide are ſeparated by a mountain, that riſes in three peaks, which is perpetually covered with ſnow, and may be ſeen clearly at 40 leagues diſtance. To the north of this mountain, the coaſt conſiſts of high and ſteep cliffs, down which fall many beautiful caſcades of water. The whole country is covered with cocoa-nut and bread-fruit trees. The peaks of the mountain on the north-eaſt ſide appear to be about half a mile in height, and entirely covered with ſnow. To the ſouth of this mountain, the coaſt preſents a proſpect of the moſt dreary kind, the whole country appearing to have undergone a total change by means of ſome dreadful convulſion. The ground is everywhere covered with cinders, and interſected in many places with black ſtreaks, which ſeem to mark the courſe of a lava that has flowed not many ages ſince from the mountain to the ſhore. The ſouthern promontory looks like the mere dregs of a volcano. The projecting headland is compoſed of broken and craggy rocks, piled irregularly one upon another, and terminating in ſharp points; yet amidſt theſe ruins, there are many pieces of rich ſoil, which are carefully laid out in plantations, and the neighbouring ſea affords a vaſt variety of excellent fiſh: ſo that this quarter is much better inhabited than thoſe which are more verdant. The fields are incloſed with ſtone fences, and are interſperſed with groves of cocoa nut trees. We are told indeed by ſome of Cook's people who walked through a conſiderable part of it, that they did not obſerve a ſpot of ground, that was ſuſceptible of improvement left unplanted; and indeed the country, from their account, could ſcarcely be cultivated to greater advantage for the purpoſes of the natives. They were ſurpriſed at ſeeing ſeveral fields of hay; and upon their inquiry, to what particular uſe it was applied, they were informed, that it was intended to cover the grounds where the young *taro* grew, in order to preſerve them from being ſcorched by the rays of the ſun. They obſerved among the plantations a few huts ſcattered about, which afforded occaſional ſhelter to the labourers; but they did not ſee any villages at a greater diſtance from the ſea than four or five miles. Near one of them, which was ſituated about four miles from the bay, they diſcovered a cave forty fathoms in length, three in breadth, and of the ſame height. It was open at each end; its ſides were fluted as if wrought with a chiſel; and the ſurface was glazed over, perhaps by the action of fire. There are ſuppoſed to be on this iſland about 150,000 inhabitants. So long as the name of Captain Cook ſhall be remembered, this iſland will not be forgotten; for he here fell a victim to a ſtrange concatenation of events. See Cook.

We have the following account of the inhabitants of this iſland in Ellis's Authentic Narrative, &c. "The men are above the middle ſize, ſtout, well made, and fleſhy, but not fat. Corpulency is not altogether ſo great a mark of diſtinction in theſe as in the Society iſles: and tallneſs, for which the Otaheiteans have great partiality, is alſo overlooked. Their colour is in general brown olive. The women are in general maſculine, though there are ſome delicately made, and the voice of them all is ſoft and feminine. The hair both of the head and beard is black; that of the head the men wear in the form of a helmet, that is, a long frizzled ridge from the forehead to the neck, the ſides being much ſhorter. This faſhion ſeems to prevail only among the principal people, that of the inferior ſort being of an equal length in every part. Moſt of them were very deſirous of parting with their beards, which, they ſaid, were diſagreeable and troubleſome, and were fond of being ſhaved by our people. Some of the prieſts wore their beards long, and would not on any account part with them. The women wear their hair long before, but very ſhort behind, which is not the moſt becoming mode; and, like thoſe of the Friendly iſles, they have a way of rendering it of different colours, red, yellow, and brown. The features of both ſexes are good, and we ſaw ſome of the females who might really be called fine women. Their teeth are even and perfectly white. In general, they ſeem to be very healthy, and we obſerved ſeveral who appeared to be of great age. As to diſeaſes, we ſaw none who laboured under any during our ſtay, except the venereal complaint; coughs and colds indeed were pretty general, and one man died. From what we could learn of his diſorder from the natives, it was a violent griping or colic. Owhyhee.

"Both men and women appeared to be of a good diſpoſition, and behaved to each other with the tendereſt regard: when they did fall out, which ſometimes was the caſe, occaſioned by the upſetting of a canoe, or ſome ſuch trifling accident, they only ſcolded a little, and this was ſoon over and forgotten. We never ſaw them ſtrike each other upon any occaſion. They are all thieves, from the aree to the towtow, but not quite ſo expert at it as our Otaheite friends.

"The cuſtom of tattowing prevails greatly among theſe people, but the men have a much larger ſhare of it than the women; many (particularly ſome of the natives of Mow'whee) have one half their body, from head to foot, marked in this manner, which gives them a moſt ſtriking appearance. It is done with great regularity, and looks remarkably neat: ſome have only an arm marked in this manner, others a leg; ſome again have both arm and leg, and others only the hand. The women are for the moſt part marked upon the tip of their tongue; but of theſe we ſaw but few. Both ſexes have a particular mark according to the diſtrict in which they live; or it is rather the mark of the aree, or principal man, under whoſe juriſdiction they more immediately are. We never ſaw the operation of tattowing performed, nor could we procure a ſight of the inſtruments uſed upon this occaſion; but it is likely they are much the ſame as thoſe of the Friendly and Society iſles.

"Both men and women are very cleanly in their perſons; the latter waſh their whole bodies in freſh water twice and ſometimes three times a-day; but the women of Otaheite have the advantage of them in one point of cleanlineſs, which is eradicating the hairs from under the arm-pits. This is a cuſtom we obſerved nowhere but at the Society iſles.

"There are no people in the world who indulge themſelves more in their ſenſual appetite than theſe: in fact, they carry it to a moſt ſcandalous and ſhameful degree, and in a manner not proper to be mentioned. The ladies are very laviſh of their favours; but are far from being ſo mercenary as thoſe of the Friendly or Society iſles, and ſome of their attachments ſeemed purely the effect

Owhyhee. effect of affection. They are initiated into this way of life at a very early period; we ſaw ſome who could not be more than ten years old.

"Their clothing conſiſts of cloth of different kinds: that worn by the men, which is called *marro*, is about half a yard wide, and four yards long; that of the women three quarters of a yard wide, and of the ſame length as the men's: this they call *pah-oòuwa*; they both wear it round their middle, but the men paſs it between their legs. This is the general dreſs of both ſexes; but the better ſort ſometimes throw a large piece looſely over their ſhoulders. Beſides the marro, they have ſeveral other kinds of cloth, which derive their names either from the different uſes they are applied to, or their different texture and pattern; all, however, as far as we could learn, are made from the Chineſe paper mulberry tree. The principal of theſe is the cappa, which is about 10 or 12 feet long, and nearly as many wide, and is thick and warm; they wrap themſelves up in this when they retire to ſleep. They have another kind, which is white, and much thinner; this, as has been before obſerved, they throw looſely over their ſhoulder; it is ſometimes 20 or 30 yards long, and wide in proportion. The marro and pah òouwa are curiouſly painted of various patterns, but the others are generally white, or dyed red, black, and yellow.

"The principal ornaments of the men are the feather caps and cloaks; ſome of the latter reach down to their heels, and have a moſt magnificent appearance. They are made for the moſt part of red and yellow feathers, which are tied upon fine net-work. The caps are compoſed of the ſame kind of feathers, which are ſometimes intermixed with black; they are ſecured upon a kind of baſket-work, made in the form of a helmet. Both caps and cloaks are made of various patterns and ſizes. The cloaks are not all compoſed of the ſame kind of feathers, but are ſometimes varied with the long tail feathers of the cock, with a border of yellow or red, and ſometimes with thoſe of the tropic bird. Both caps and cloaks, however, are only to be ſeen in the poſſeſſion of the principal people. They have alſo a kind of fly-flap, made of a bunch of feathers fixed to the end of a thin piece of ſmooth and poliſhed wood: they are generally made of the tail feathers of the cock, but the better ſort of people have them of the tropic bird's feathers, or thoſe belonging to a black and yellow bird called *mohó*. The handle is very frequently made of one of the bones of the arms or leg of thoſe whom they have killed in battle, curiouſly inlaid with tortoiſe-ſhell: theſe they deem very valuable, and will not part with them under a great price. This ornament is common to the ſuperiors of both ſexes.

"The women too have their ſhare in the ornamental way: that which they value moſt is the ornament. This is a kind of ruff or necklace, made of red, green, black, and yellow feathers, curiouſly put together, and in moſt elegant patterns, which really do honour to the fancy of the ladies, whoſe buſineſs it is to make them. They never think themſelves dreſſed without one or two of theſe round their necks, and thoſe who can afford it wear many. Others again are compoſed of ſmall variegated ſhells, diſpoſed in a very neat manner; and ſome conſiſt of ſeveral rows of twiſted hair, with a piece of carved wood or bone, highly poliſhed, the bottom part forming a curve. The higher the quality of the wearer, the greater is the ſize of the wood or bone, and the quantity of the twiſted hair. The next thing is the poo-remah or bracelet; the moſt valuable are made of boar's tuſks faſtened together ſide by ſide with a piece of ſtring, by means of a hole drilled though the middle; the larger the tuſks, the greater the value. Sometimes two ſhells tied round the wriſts with twiſted or braided hair, ſerve the purpoſe of bracelets; but even in this caſe they ſhow great nicety, being particularly careful to match them as near as poſſible. They were prodigiouſly fond of thoſe we gave them, which were only a few beads, ſecured by thread upon a ſtrip of ſcarlet cloth, and made to button round the wriſt. So much did they at firſt value them, that a ſmall hatchet and one of theſe would purchaſe a hog, which without it could not have been bought for three large hatchets. The women were perpetually teazing the men to diſpoſe of their various articles for theſe bracelets; at leaſt one of them was always to make a part of the price." W. Long. 156. 0. N. Lat. 19. 28.

Owl || Oxford.

OWL. See STRIX, ORNITHOLOGY *Index*.

OWLING, ſo called from its being uſually carried on in the night, is the offence of tranſporting wool or ſheep out of this kingdom, to the detriment of its ſtaple manufacture. This was forbidden at common law, and more particularly by ſtatute 11 Edw. III. c. 1. when the importance of our woollen manufacture was firſt attended to; and there are now many later ſtatutes relating to this offence, the moſt uſeful and principal of which are theſe enacted in the reign of Queen Elizabeth, and ſince. The ſtatute 8 Eliz. c. 3. makes the tranſportation of live ſheep, or embarking them on board any ſhip, for the firſt offence forfeiture of goods, and impriſonment for a year, and that at the end of the year the left hand ſhall be cut off in ſome public market, and ſhall be there nailed up in the openeſt place; and the ſecond offence is felony. The ſtatutes 12 Car. II. c. 32. and 7 & 8 Will. III. c. 28. make the exportation of wool, ſheep, or fullers earth, liable to pecuniary penalties, and the forfeiture of the intereſt of the ſhip and cargo by the owners, if privy; and confiſcation of goods, and three years impriſonment to the maſter and all the mariners. And the ſtatute 4 Geo. I. c. 11. (amended and farther enforced by 12 Geo. II. c. 21. and 19 Geo. II. c. 34.), makes it tranſportation for ſeven years, if the penalties be not paid.

OXALIS, WOODSORREL, a genus of plants belonging to the decandria claſs, and in the natural method ranking under the 14th order, *Gruinales*. See BOTANY *Index*.

OXFORD, the capital of a county of the ſame name in England, celebrated for its univerſity, and pleaſantly ſituated in a plain, in the middle of a fine fruitful country. The compoſition of the name is obvious. In the Britiſh times it ſeems to have been a place of ſtudy. "The wiſdom of our anceſtors (ſays Camden) as appears in our hiſtory, conſecrated even in the Britiſh times this city to the muſes, tranſlating them from Greeklade (now a ſmall town in Wilts) hither, as to a more fruitful nurſery. For Alexander Necham* writes, "Italy claims ſuperior knowledge of civil law; but the ſtudy of

* *De Naturæ Rerum*, lib. 2.

Oxford. of divinity and the liberal arts proves, that the univerſity of Paris deſerves the preference to all others. Agreeable alſo to Merlin's prophecy, Wiſdom has flouriſhed at the Ford of Oxen, and will in its due time paſs over alſo into Ireland." But in the following Saxon age, when ſo many cities were deſtroyed, it underwent the common fate, and for a long while was famous only for the relicks of Frideſwide, who was ranked among the ſaints for her holy life, merely becauſe ſhe had ſolemnly devoted herſelf to God; and Prince Algar, ſoliciting her in marriage, was miraculouſly, as they ſay, deprived of his eye-ſight."

Perhaps the following additional extract from Camden will be more to the purpoſe in developing the ancient ſtate of learning in this city, than any thing which we could bring forward of our own. "When the ſtorm of the Daniſh war was over, the moſt reli-
*A.D. 886. gious Prince Alfred * reſtored their retreats to the long-exiled muſes, by founding three colleges, one for grammarians, another for philoſophy, and a third for divinity. This will be more fully explained by the following paſſage in the old annals of the New Monaſtery at Wincheſter. 'In the year of our Lord 806, the ſecond year of the arrival of St Grimbald in England, the univerſity of Oxford was begun; the firſt who preſided and read divinity lectures in it being St Neoth, an abbot and able divine, and St Grimbald, a moſt eminent profeſſor of the incomparable ſweetneſs of the ſacred pages; Aſſer the monk, an excellent ſcholar, profeſſing grammar and rhetoric; John monk of the church of St David giving lectures in logic, muſic, and arithmetic; and John the monk, colleague of St Grimbald, a man of great parts, and a univerſal ſcholar, teaching geometry and aſtronomy before the moſt glorious and invincible King Alfred, whoſe memory will dwell like honey in the mouths of all." Soon after, as we find in an excellent MS. of the ſaid Aſſer, who was at that time profeſſor here, 'broke out a ſharp and fatal quarrel between Grymbold and thoſe very learned men whom he had brought thither with him, and the old ſcholars whom he found there; who, on his coming, unanimouſly refuſed to receive the rules, methods, and forms of lecturing, that Grymbold introduced. Three years had paſſed without any great difference between them; but the ſecret averſion afterwards broke out with the utmoſt violence. In order to quell it, the invincible King Alfred, as ſoon as he heard of it by the meſſages and complaints from Grymbold, went in perſon to Oxford to put an end to the diſpute, and he took the greateſt pains to hear the cauſes and complaints on both ſides. The foundation of the difference was this: The old ſcholars maintained, that before Grymbold came to Oxford, learning had flouriſhed there, though the ſcholars at that time were fewer than in more ancient times, the greater part being driven out by the cruelty and oppreſſion of the Pagans. They alſo proved and ſhowed, and that by the undoubted teſtimony of ancient chronicles, that the ordinances and regulations of the place were eſtabliſhed by certain religious and learned men, ſuch as Gildas, Melkinnus, Ninnius, Kentigern, and others, who had all lived to a good old age in theſe ſtudies, having ſettled matters there in peace and harmony; and alſo that St Germanus came to Oxford, and ſtaid there half a year in his journey over Britain to preach againſt the Pelagian hereſies, and wonderfully approved their plan and inſtitution. The king, with unheard-of condeſcenſion, gave both parties attentive hearing, and repeated his pious and ſeaſonable advice to maintain mutual union and concord, and left them with the proſpect that both parties would follow his advice and embrace his inſtitutions. But Grymbold, offended at this proceeding, immediately retired to the monaſtery at Wincheſter lately founded by King Alfred. He alſo cauſed his tomb to be removed to Wincheſter, in which he had intended to lay his bones when his courſe of life was ended, in the vault under the chancel of St Peter's church at Oxford, which church himſelf had built from the ground, of ſtone poliſhed in the moſt coſtly manner.' Oxford.

"This happy reſtoration of learning was followed in a few years by various calamities. The Danes in the reign of Edward plundered and burnt the place; and ſoon after Harold Harefoot practiſed the moſt inhuman barbarities here in revenge for ſome of his men who were killed in an affray; ſo that the moſt melancholy remove of the ſtudents enſued, and the univerſity remained almoſt extinct, a lamentable ſpectacle, till the time of William the Norman. Some have falſely ſuppoſed this prince took the city, miſled by a wrong reading in ſome copies of *Oxonia* for *Exonia*. At that time, however, it was the ſeat of an univerſity, as we learn from theſe words of Ingulphus, who lived at that time. 'I Ingulphus ſettled firſt at Weſtminſter, was afterwards ſent to ſtudy at Oxford, having made greater proficiency than many of my own age in Ariſtotle, &c.' What we call an *univerſity*, they in that age called a *ſtudy*." Many are of opinion that it was deſerted till about the year 1129, and that this deſertion was in conſequence of its having been beſieged and taken by William the Conqueror. About this year, however, Robert Pulen began to read lectures in divinity, or (as it is expreſſed in the chronicle of Oſeney abbey) the Holy Scriptures, which had fallen into neglect in England; and ſuch was the reſort of ſtudents to it, that in the reign of King John there were not fewer than 3000. Robert d'Oily, a Norman, to whom William the Conqueror had given the greateſt part of it, built a caſtle on the weſt ſide in 1071; and he is alſo ſuppoſed to have ſurrounded it with walls. In a palace built by Henry I. was born Richard I. commonly called *Cœur de Lion*. About the tenth of King John, there happened a quarrel between the citizens and ſtudents; in conſequence of which many of the latter quitted it, but returned again a few years afterwards. Here Henry III. held a parliament to ſettle the differences betwixt him and his barons; when he confirmed the privileges granted to the univerſity by his predeceſſors, and added others of his own. In this reign the ſtudents are ſaid to have been 30,000, who were all excommunicated by the pope for ſome rudeneſs to his legate. In the time of Duns Scotus, we are told that 30,000 ſcholars attended his lectures. Matthew Paris ſtyles the univerſity of Oxford, 'the ſecond ſchool of the church after Paris, and the very foundation of the church.' The popes had before this honoured it with the title of *Univerſity*, which they had conferred by their decrees on no other but that of Paris, this of Oxford, and thoſe of Bologna and Salamanca. It was decreed in the council of Vi-

enne,

Oxford. enne, that 'ſchools for the ſtudy of the Hebrew, Arabic, and Chaldee languages, ſhould be erected in the ſtudies of Paris, Oxford, Bologna, and Salamanca (as the moſt conſiderable), that the knowledge of theſe languages might prevail by their being thus taught; and that Catholic perſons be choſen, ſufficiently verſed therein, two in each language. For thoſe in Oxford, the biſhops, monaſteries, chapters, convents, colleges, exempt and not exempt; and the rectors of churches throughout England, Scotland, Ireland, and Wales, were to provide a competent maintenance." In Edw. III.'s time, the ſcholars were ſplit into two factions, called the *northern* and *ſouthern men;* a diviſion which was attended with many diſorders and much violence, but in a ſhort time concord and harmony again prevailed.

As colleges began about this time to be founded and endowed, we ſhall here preſent our readers with a liſt of them, together with the time when, and the perſons by whom, they were founded.

Colleges.	*Founders.*	*Kings reigns.*
Univerſity.	King Alfred.	Alfred.
Baliol.	Sir John Baliol, father to the king of Scots.	Henry III.
Merton.	Walter Merton, lord chancellor and biſhop of Rocheſter.	Edward I.
Oriel.	Edward II.	Edw. II.
Exeter.	Walter Stapleton, biſhop.	Edw. II.
Queen's.	Robert Eglesfield, B. D.	Edw. III.
New College.	William of Wickham, biſhop of Wincheſter, lord chancellor.	Edw. III.
Lincoln.	Richard Fleming, biſhop of Lincoln.	Henry VI.
All-Souls.	Hugh Chicheley, archbiſhop of Canterbury.	Henry VI.
Magdalen.	William Wainfleet, biſhop of Wincheſter, lord chancellor.	Henry VI.
Brazen-Noſe.	William Smith, biſhop of Lincoln, and Richard Sutton, Eſq.	Hen. VIII.
Corpus-Chriſti.	Richard Fox, biſhop of Wincheſter, and lord privy ſeal.	Hen. VIII.
Chriſt-Church.	Henry VIII. and Cardinal Wolſey.	Hen. VIII.
Trinity.	Sir Thomas Pope.	Mary.
St John Baptiſt.	Sir Thomas White, merchant of London.	Mary.
Jeſus.	Queen Elizabeth.	Elizabeth.
Wadham.	Nicolas and Dorothy Wadham.	James I.
Pembroke	Thomas Tiſdale, Eſq. and Dr Richard Whitwick.	James I.

Worceſter was called *Glouceſter-hall* till lately, that it was endowed by Sir Thomas Coke, and made collegiate.

Hartford was *Hart hall* till 1740, that it was erected into a college by Dr Richard Newton.

All theſe are richly endowed, and have fine gardens, libraries, chapels, &c. The halls in which the ſtudents maintain themſelves, except a few that have exhibitions, are theſe: St Edmund's, belonging to Queen's college; Magdalen, to Magdalen college; St Alban's, to Merton; St Mary's, to Oriel; New-Inn, to New-college. Several perſons have been great benefactors to particular colleges, as Dr Ratcliffe to Univerſity college; Colonel Codrington and Dr Clarke, to All-Souls; Queen Caroline, to Queen's; the beforementioned Dr Clarke and Mrs Eaton, to Worceſter; Dr Wake, archbiſhop of Canterbury, to Chriſt-church. The moſt conſiderable of theſe colleges are Magdalen's and Chriſt-church, which are as noble foundations as any in the world. The church of the latter is the cathedral, and has a dean, eight canons, eight chaplains, eight ſinging men, eight choriſters, a teacher of muſic, and an organiſt. Each of the colleges has its viſitor appointed by its ſtatutes, except Chriſt-church, which is ſubject to the viſitation of the Sovereign alone. The other remarkable buildings belonging to the univerſity are, firſt, the public ſchools; ſecondly, the Bodleian or public libraey; thirdly, Ratcliffe's library, a moſt elegant ſtructure, for building and furniſhing which, Dr Ratcliffe left 40,000l.; fourthly, the theatre, built by Sheldon, archbiſhop of Canterbury; fifthly, the muſeum, in which is an elaboratory and a repoſitory for natural and artificial rarities and antiquities; ſixthly, the Clarendon printing-houſe, ſo called, becauſe it was built partly with the money ariſing to the univerſity by the ſale of Lord Clarendon's hiſtory. To the ſouth of Magdalen college lies the phyſic garden, inſtituted by the Earl of Danby, and much improved by Dr Sherrard. It contains five acres, in which is a complete ſeries of ſuch plants as grow naturally, diſpoſed in their reſpective claſſes; together with two neat and convenient green-houſes, ſtocked with a valuable collection of exotics, and a hot-houſe, where various plants brought from the warmer climates are raiſed. The whole body of the univerſity, including profeſſors, fellows, and ſtudents of all ſorts, exceeds 3000. Each college has its particular ſtatutes and rules for government. There are four terms in the year for public exerciſes, &c. and particular days and hours for public lectures by the ſeveral profeſſors. The univerſity is governed by a chancellor, high-ſteward, vice-chancellor, two proctors, a public orator (ſee *Public* ORATOR); a keeper of the archives, a regiſter, three eſquire-beadles, and three yeomen-beadles. As to the city, it has had the ſame privileges granted to it as London, particularly an exemption from toll all over England. It was made an epiſcopal ſee in 1541, when Robert King, the laſt abbot of Oſeney, was elected biſhop. It is governed by a mayor, high-ſteward, recorder, four aldermen, eight aſſiſtants, two bailiffs, a town-clerk, two chamberlains, all that have borne the office of bailiff and chamberlain, and 24 common-council men; but theſe are ſubject to the chancellor or vice-chancellor of the univerſity in all affairs of moment; and not only the mayor, but the principal citizens, and ſheriff of the county, take an oath to maintain the privileges of the univerſity. The city, including the colleges, is a place of conſiderable magnitude, having 13 pariſh-churches, beſides the cathedral, well built, clean, and regular. At the entrance of the town from the Woodſtock and Banbury roads, a neat hoſpital hath been lately erected by the truſtees of Dr Ratcliffe's benefaction, out of the ſurplus money remaining after defraying the expence of his library. The male line of the family of Vere, to whom the city had given the title of earl for 500 years, failing in Aubrey de Vere, who was twentieth earl, Queen Anne conferred the title upon Robert Harley, a deſcendant of the Veres, in whoſe family it ſtill continues. The chief trade of the city is in malt, conveyed in barges to London. It is impoſſible, in the narrow bounds neceſſarily preſcribed to this article, to give ſo particular an account of this celebrated place as its importance demands: but we ſhall refer our readers to the article UNIVERSITY, when this ſeminary, amongſt others, ſhall be more particularly deſcribed.

Oxford, Oxfordſhire.

OXFORDSHIRE, which made part of the territory

Oxgang || Oxygen.

ritory of the ancient *Dobuni*, a county of England, bounded on the weſt by Glouceſterſhire; on the ſouth, where it is broadeſt, the river Iſis divides it from Berkſhire; on the eaſt, it is bounded by Buckinghamſhire; and on the north, where it terminates in a narrow point, it has on the one ſide Northamptonſhire, and on the other Warwickſhire. It extends 50 miles from north to ſouth, and 35 from eaſt to weſt, making about 130 in circumference: within which are contained one city, 15 market towns, 280 pariſhes, 14 hundreds, 534,000 acres, and about 109,620 ſouls. The air is ſweet and pleaſant, and the ſoil rich and fertile. The lower parts conſiſt of meadows and cornfields, and the higher were covered with woods till the civil wars; in which they were ſo entirely deſtroyed, that wood is now extremely ſcarce and dear, except in what is called the Chiltern, and ſo is coal; of conſequence fuel bears an exorbitant price. The county is extremely well watered; for beſides the Iſis, Tame, Cherwell, Evenlode, and Windruſh, there is a great number of leſſer rivers and brooks. One of the four great Roman ways paſſes quite through this county, entering at the pariſh of Chinner, and going out at that of Goring. There is another leſſer one, that extends between Colnbrook and Wallinford, called *Gremeſdike*. The county ſends nine members to parliament, viz. two for the ſhire, two for the city, two for the univerſity, two for New Woodſtock, and one for Banbury.

OXGANG, or OXGATE, is generally taken, in our old law-books, for 15 acres, or as much ground as a ſingle ox can plough in a year.

OXUS, or JIHUN, a large river of Aſia, much taken notice of in ancient hiſtories, but does not riſe in the north of India, as moſt writers affirm; for, according to the beſt and lateſt maps made by thoſe who have been upon the ſpot, it ran a courſe of about 260 miles from the Caſpian ſea to the lake Aral, whoſe dimenſions have lately been diſcovered, and is but very lately known to the Europeans; but, as it paſſes through a deſert country abounding with ſands, the inhabitants ſo diverted its courſe, that the old channel can hardly be diſcovered.

OXYCRATE, an old term, in *Pharmacy*, denoting a mixture of vinegar and water, proper to aſſuage, cool, and refreſh. The uſual proportion is one ſpoonful of vinegar to five or ſix ſpoonfuls of water.

OXYDE, or OXIDE, in *Chemiſtry*, is the term uſed to denote a very numerous claſs of bodies formed by the union of certain baſes with a ſmaller proportion of oxygen than what is neceſſary for their converſion into acids. The moſt remarkable of theſe bodies are what were formerly called metallic calces, and have for their baſe ſome metallic ſubſtance. It is in this ſtate that metals are often contained in the ores, from which they are extracted, and converted into the metallic form, by the proceſs called *reduction*. Metals are converted into oxides by combuſtion, and by ſolution in acids; and many of them aſſume this form from the action of the atmoſphere alone, but more readily when this is aſſiſted by moiſture. See the hiſtory of the metals under CHEMISTRY.

OXYDATION, or OXIDATION, is a term employed to expreſs the proceſs by which bodies are converted into oxides. See METALS under CHEMISTRY.

OXYGEN, a term adopted in the new chemical nomenclature, to expreſs the acidifying principle; from Oxyglycu || Ozanam.

ὀξυς "acid," and γινομαι "to generate." It is not found naturally in a ſeparate ſtate, but always combined with ſome other ſubſtance. In its acriform or elaſtic ſtate, it is called *oxygenous gas*, and is the ſame as the *dephlogiſticated air* of Prieſtley and Cavendiſh, the *empyreal air* of Scheele, the *vital* and *pure air* of other chemiſts. See OXYGEN, CHEMISTRY *Index*.

OXYGLYCU, a ſpecies of drink prepared of the ſweeteſt honey-combs macerated and boiled. The combs, from which all the honey has been expreſſed, are put into a pot with pure water, and boiled till they ſeem to have depoſited all their contained honey in the water. This liquor is to be kept; and, when diluted with cold water, is to be drank in the ſummer time, in order to remove thirſt.

OXYMEL, in *Pharmacy*, a compoſition of vinegar and honey.

OYER, in law-books, ſeems to have been anciently uſed for what is now called *aſſiſes*. See ASSISE.

OYES, a corruption of the French OYEZ, *Hear ye*; a term or formula frequently uſed by the criers in our courts on making proclamations, or to enjoin ſilence.

OYSTER, a ſhell-fiſh. See OSTREA, CONCHOLOGY *Index*.

OYSTER-Catcher. See HÆMATOPUS, ORNITHOLOGY *Index*.

OYSTERS, Foſſile. The largeſt bed that is known of foſſile oyſters is that near Riding in Berkſhire. Their ſhape is entire, and they conſiſt of the ſame ſubſtance with recent oyſter-ſhells; and yet ſince the oldeſt hiſtories that mention the place give an account of them, we muſt ſuppoſe they have lain there for a long time. They extend over no leſs than ſix acres of ground; and juſt above them is a large ſtratum of a greeniſh loam, which ſome writers call a green earth, and others a green ſand. It is compoſed of a crumbly marle, and a large portion of ſand. Under them is a thick ſtratum of chalk. They all lie in a level bed; and the ſtrata above the ſhells are natural, and appear never to have been dug through till the time of finding the ſhells. *Philoſ. Tranſ.* N° 261. p. 484.

OZÆNA, a foul and malignant ulcer of the noſe, diſtinguiſhed by its fœtor, and often accompanied with a caries of the bones of the noſe.

OZANAM, JAMES, an eminent French mathematician, born at Boligneux in Breſſe, in 1640, of a wealthy family. His father gave him a good education, and deſigned him for the church: but ſome mathematical books falling into his hands, inſpired him with a love for that ſcience; and though he had no maſter to inſtruct him, he made ſuch progreſs in it, that, at 15 years of age, he wrote a piece in mathematics, which he thought proper to inſert in the works he afterwards publiſhed. He at length taught that ſcience at Lyons; and his mathematical leſſons brought him in a conſiderable revenue, till the year 1701: at which period, a war breaking out on the ſucceſſion to the crown of Spain, he loſt almoſt all his ſcholars, and was reduced to a very melancholy ſituation; and his wife dying the ſame year, he was ſo afflicted, that he never perfectly recovered it. In 1702 he was admitted into the Royal Academy of Sciences; and died of an apoplexy in 1717.—He was of a mild and ſe-

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Ozell, Ozias.

rene temper, of ſingular generoſity, and of a chearful diſpoſition.—He would not allow himſelf to know more of religion than the common people. He uſed to ſay, that "it was the buſineſs of the doctors of the Sorbonne to diſpute, of the pope to decide, and of a mathematician to go to heaven in a perpendicular line." His works are very numerous, and have met with the approbation of the learned. The principal are, 1. Practical Geometry, 12mo. 2. A mathematical dictionary. 3. A courſe of mathematics, 5 vols. 8vo. 4. Mathematical and philoſophical recreations, the moſt complete edition of which is that which was improved by Montucla, and afterwards enlarged by Dr Charles Hutton, publiſhed in 1803, in four vols. 8vo. 5. An eaſy method of ſurveying. 6. New elements of algebra, a work much commended by Monſ. Leibnitz. 7. Theoretical and practical perſpective, &c.

OZELL, JOHN, a well-known tranſlator, educated in Chriſt's Hoſpital, was poſſeſſed of a competent fortune, and always enjoyed good places, being auditor-general of the city and bridge accounts, of St Paul's cathedral and of St Thomas's hoſpital. Notwithſtanding his attention to buſineſs, he ſtill retained a love for polite literature: and though he did not appear as an original author, yet having made himſelf maſter of moſt of the living languages, he favoured the world with many tranſlations from theſe, as well as from the Latin and Greek; which, if they are not the moſt elegant, are generally faithful and true to the originals. He died in the year 1743.

OZIAS, in ſacred hiſtory, the ſon of Micha, of the tribe of Simeon, one of the governors of Bethulia when it was beſieged by Holofernes. He vigorouſly ſupported the ſiege againſt this general, and received Achior into his houſe, when he had been driven from the Aſſyrian camp. Finding however at length that the city was reduced to great neceſſity for water, and that the people mutinied againſt him, he promiſed to ſurrender the place in five days, if in that time God did not ſend them relief. Judith (vi. vii. viii. ix. and x.) being informed of this reſolution, ſent to ſpeak with Ozias and the other leading men of the city; made a prudent remonſtrance upon their ſeeming to preſcribe a time to the Lord, in which he muſt ſuccour them; encouraged them to patience; and without diſcovering her deſign, told them that ſhe would go out in the night. Ozias being at the gate of the city when Judith departed, opened it to her, and waited in the city for the ſucceſs of her undertaking, praying with her people to God that he would be pleaſed to deliver them. See the article JUDITH.

Ozias || P.

OZOLÆ, or OZOLI, a people who inhabited the eaſtern parts of Ætolia which were called *Ozolea*. This tract of territory lay at the north of the bay of Corinth, and extended about 12 miles. They received their name from the bad ſtench (ὀζη) of their bodies and clothes, which were the raw hides of wild beaſts. Some derive it from the ſtench of the ſtagnated water in the neighbouring lakes and marſhes. According to a fabulous tradition, they received their name from a very different circumſtance: During the reign of a ſon of Deucalion, a bitch brought into the world a ſtick inſtead of whelps. The ſtick was planted into the ground by the king, and it grew up to a large vine, and produced grapes, from which the inhabitants of the country were called *Ozolæ*, not from ὀζειν, "to ſmell bad," but from ὀζος, "a branch or ſprout." The name *Ozolæ*, on account of its indelicate ſignification, was highly diſagreeable to the inhabitants; they therefore exchanged it ſoon for that of Ætolians.

P.

P the 15th letter and 11th conſonant of the alphabet; the ſound of which is formed by expreſſing the breath ſomewhat more ſuddenly than in forming the ſound of *b*; in other reſpects theſe two ſounds are pretty much alike, and are often confounded one with another. When *p* ſtands before *t* or *ſ*, its ſound is loſt; as in the words *pſalms*, *pſychology*, *ptolemaic*, *ptiſan*, &c. When placed before *h*, they both together have the ſound *f*; as in *philoſophy*, *phyſic*, &c.

P and *B* are ſo like each other, that Quintilian declares, that in the word *obtinuit*, his reaſon required him to put a *b*, but that his ears could hear nothing but a *p*, *optinuit*: hence in ancient inſcriptions, and old gloſſaries, it appears that theſe two letters have often been confounded. Several nations ſtill pronounce one for the other, the Welch and Germans particularly, who ſay, *ponum vinum*, for *bonum vinum*. Plutarch obſerves, it was uſual for thoſe of Delphi to ſay βαλειν for παλειν, βικερον for πικερον; and among the Latins, as often as an *s* followed, the *b* was changed into a *p*, as *ſcribo*, *ſcripſi*.

As an abbreviation, P ſtands for *Publius*, *Pondo*, &c. PA. DIG. for *Patricia Dignitas*; P. C. for *Patres Conſcripti*; P. F. for *Publii Filius*; P. P. for *Propoſitum*, or *Propoſitum publice*; P. R. for *Populus Romanus*; P. R. S. for *Prætoris ſententia*, P. R. S. P. for *Præſes provinciæ*.

P. M. among *Aſtronomers*, is frequently uſed for *poſt meridiem*, or "afternoon;" and ſometimes for *poſt mane*, "after the morning, i. e. after midnight. P was alſo uſed among the ancients as a numeral letter, ſignifying the ſame with the G, viz. a hundred; according to the verſe of Ugutio,

Fabulum || Pack.

P ſimilem cum G numerum monſtratur habere.

Though Baronius thinks it rather ſtood for ſeven.

When a daſh was added a-top of P, it ſtood for four hundred thouſand.

St Jerome obſerves on Daniel, that the Hebrews had no *P*; but that the *ph* ſerved them inſtead thereof; adding that there is but one word in the whole Bible read with a *P*, viz. *apadno*. The Greek π ſignified 80. On the French coins, *P* denotes thoſe that were ſtruck at Dijon.

In the Italian muſic, P ſtands for *piano*, or "ſoftly:" and P. P. P. for *pianiſſimo*, or "very ſoftly."

Among phyſicians, P ſtands for *pugil*, or the eighth part of an handful; P. Æ. *partes æquales*, or equal parts of the ingredients; P. P. ſignifies *pulvis patrum*, or Jeſuit's bark in powder; and *ppt. preparatus* or prepared.

PABULUM, among natural philoſophers, the ſame with FUEL.

PACA, ſee MUS, MAMMALIA *Index*.

PACE, a meaſure taken from the ſpace between the two feet of a man in walking; uſually reckoned two feet and a half, and in ſome men a yard or three feet. The geometrical pace is five feet; and 60,000 ſuch paces make one degree on the equator.

PACE, in the manege, is of three kinds, viz. walk, trot, and gallop; to which may be added an amble, becauſe ſome horſes have it naturally.

Horſes which go ſhuffling, or with mixed paces between the walk and amble, are for the moſt part of no value; which commonly proceeds from their fiery temper, but ſometimes from a weakneſs in their reins or legs.

PACHAMAC, a valley of Peru, in South America, ten miles ſouth of Lima; celebrated for its pleaſantneſs and fertility, but more on account of a magnificent temple built by the Incas of Peru, to the honour of their god. When the Spaniards conquered Peru, they found immenſe riches therein.

PACHSU, a ſmall iſland in the Mediterranean ſea; near the coaſt of Epirus, and in European Turkey. It lies ſouth of Corfu, and is ſubject to Venice.

PACIFIC OCEAN, that vaſt ocean which ſeparates Aſia from America. It is called *Pacific*, from the moderate weather the firſt mariners who ſailed in it met with between the tropics; and it was called *South Sea*, becauſe the Spaniards croſſed the iſthmus of Darien from north to ſouth when they firſt diſcovered it; though it is properly the Weſtern ocean with regard to America.

Geographers call the South ſea *Mare Pacificum*, "the Pacific ocean," as being leſs infeſted with ſtorms than the Atlantic; but M. Frezier affirms it does not deſerve that appellation, and that he has ſeen as violent ſtorms therein as in any other ſea; but Magellan happening to have a very favourable wind, and not meeting with any thing to ruffle him when he firſt traverſed this vaſt ocean in 1520, gave it the name which it has retained ever ſince. Maty, however, adds, that the wind is ſo regular there, that the veſſels would frequently go from Acapulco to the Philippine iſlands without ſhifting a ſail.

PACK, in commerce, denotes a quantity of goods made up in loads or bales for carriage. A pack of wool is 17 ſtone and 2 pounds, or a horſe's load.

Package || Paddoc.

PACKAGE, is a ſmall duty of one penny in the pound, paid for all goods not particularly rated.

PACKET, or *PACKET Boat*, a veſſel appointed by the government to carry the mail of letters, packets, and expreſſes from one kingdom to another by ſea in the moſt expeditious manner. Thus, the packet-boats, under the direction of the poſt-maſter-general of Great Britain, carry the mails from Dover to Calais, from Falmouth to Liſbon, from Harwich to Helvoetſluys, and from Parkgate to Dublin. See POST.

PACOS, or PACO, in *Zoology*, a ſpecies of camel, commonly, though improperly, reckoned a ſpecies of ſheep; and known among many by the name of the *Indian ſheep*, or *Peruvian ſheep*. See CAMELUS, MAMMALIA *Index*.

This creature has been accounted a ſheep, becauſe its hair is ſo long as to reſemble wool, and it is prodigiouſly thick, its head and neck alone having more wool on them than the whole body of our largeſt ſheep. Its body is clothed in the ſame proportion with a woolly hair equally fine.

PACTOLUS, in *Ancient Geography*, a river of Lydia, called *Chryſorrhoas*, from its rolling down golden ſand, according to Herodotus, Plutarch, Pliny, and Strabo; riſing in Mount Tmolus (Strabo). From this river Crœſus is thought to have had all his riches. In Strabo's time it ceaſed to roll down any. It ran through Sardis; after which it fell into the Hermus, and both together into the Ægean ſea at Phocæa in Ionia. A river celebrated by Virgil, Ovid, Lucan, Lycophron, Horace, Appollonius.

PACUVIUS, MARCUS, of Brunduſium in Calabria, a tragic poet in high reputation about the year of Rome 600. He was nephew of Ennius; publiſhed ſeveral theatrical pieces, though we have only ſome fragments of his poetry remaining; and died at Tarentum at above 90 years of age.

PADAN-ARAM (Bible), literally the *plains of Aram*, or *Syria*; tranſlated by the Seventy ſimply *Meſopotamia*, or *Meſopotamia of Syria*; by the Vulgate, *Syriæ*; the Syrians on this and on the other ſide of the Euphrates, not differing remarkably from each other in language and manners, as Joſephus allows.

PADDOC, or *PADDOC-Courſe*, a piece of ground encompaſſed with pales or a wall, and taken out of a park, for exhibiting races with greyhounds, for plates, wagers, or the like.

A paddoc is generally a mile long, and a quarter of a mile broad: at the one end is a little houſe where the dogs are to be entered, and whence they are ſlipped; near which are pens to incloſe two or three deer for the ſport. Along the courſe are ſeveral poſts, viz. the low poſt, which is 160 yards from the dog-houſe and pens; the quarter of a mile poſt, half-mile poſt, and pinching poſt; beſides the ditch, which is a place made to receive the deer, and preſerve them from farther purſuit. And near this place are ſeats for the judges choſen to decide the wager.

The keepers, in order to ſlip the dogs fairly, put a falling collar upon each, ſlipped round a ring; and the deer being turned looſe, and put forward by a teazer,

as

Paderborn

as ſoon as he is arrived at the low poſt, the dog-houſe door is thrown open, and the dogs ſlipped. If now the deer ſwerve ſo much, as that his head is judged nearer the dog-houſe than the ditch before he arrive at the pinching-poſt, it is no match, and muſt be run over again three days after: but if the deer runs ſtraight beyond the pinching poſt, then that dog which is neareſt when he ſwerves, or is blanched by any accident, wins the match; but if no ſuch ſwerve happens, then the match is won by the dog who firſt leaps the ditch.

PADERBORN, a duchy of Germany in the circle of Weſtphalia, has the county of Lippe on the north and weſt; Heſſe-Caſſel and Waldeck, on the ſouth; and Munſter, with the duchy of Weſtphalia on the weſt. Its greateſt length from eaſt to weſt is about 40 miles, and its breadth where wideſt 30. Some parts of it yield good paſture, and breed abundance of cattle; but it is not very fruitful in corn. There is a heath called the *Senne* or *Sende*, of great extent, but very barren and deſolate. There are, however, good iron mines in the country, with ſalt and medicinal ſprings, plenty of deer and other game; and it is watered with ſeveral rivers abounding with fiſh, as the Weſer, the Dimer, the Biver, the Nette, the great Emmer, the Lippe, the Alme, and the Pader. It contains 54 pariſhes, in which are 25 market towns and 16 monaſteries. The Roman Catholic is the predominant religion of the country, yet there are alſo many Proteſtants in it. The biſhopric was erected by Charlemagne, towards the cloſe of the eighth century, and the cathedral was conſecrated by Pope Leo in perſon, anno 796. The biſhop is ſovereign of the country, a prince of the empire, and ſuffragan of the archbiſhop of Mentz. His revenue is about 30,000 pounds a-year, and he is able to raiſe 3000 men. In the matricula his aſſeſſment is 18 horſe and 34 foot, or 352 florins monthly in lieu of them. Towards the charges of the ſovereign courts of the empire, he pays for each term 162 rix-dollars and 29 kruitzers. The chapter conſiſts of 24 capitular canons, who muſt prove their noble extraction by four deſcents. The arms of the biſhopric are a croſs or, in a field gules. For the government of it, and the adminiſtration of juſtice, there are ſeveral councils and colleges under the biſhop. Here are alſo a hereditary marſhal, ſewer, cup-bearer, chamberlain, ſteward, and purveyor. It was in this biſhopric that Quintilius Varus, with the Roman army under his command, was routed by the Germans under Arminius.

PADERBORN, the capital of the above biſhopric. It ſtands 40 miles north-weſt of Caſſel, 50 ſouth-eaſt of Munſter, and 60 ſouth-weſt of Hanover; being a large, populous, well-built, and well fortified city. Its name is compounded of *pader*, a rivulet, which riſes juſt under the high altar of the cathedral, and *born*, i. e. a ſpring. It was one of the Hanſe-towns; and, till 1604, an imperial city. The cathedral is a grand fabric, inferior to few in the empire. There is a gold crucifix in it of 60 pounds weight, preſented by Otho II. The univerſity, of which the Jeſuits have the direction, was founded in 1592, and the walls were built in the beginning of the 11th century. In 1530 an attempt was made to introduce Lutheraniſm; but 16 of the principal citizens who had embraced it were executed, and the reſt obliged to abjure it. Duke Chriſtian of Brunſwick carried off from hence, in 1692, the ſilver images of the twelve apoſtles, and the ſilver coffin of St Lotharius; and had them coined into money, with this inſcription, *God's Friend, the Prieſt's Enemy.* The trade of this town, though formerly great, is now inconſiderable; and the inhabitants ſubſiſt moſtly by agriculture and breeding of cattle. Though the biſhop has a palace in the city, he reſides (when he vouchſafes to viſit this country, which is ſeldom, having other and more valuable benefices) at Neuhaus, ſeven miles off, where he has a magnificent caſtle. Charlemagne and other emperors ſometimes reſided here, and held diets of the empire.

Padogi || Paduano

PADOGI, a puniſhment uſed in Ruſſia. The body of the criminal is ſtripped to the waiſt, and then laid upon the ground; one ſlave holds the head of the perſon to be puniſhed between his knees, and another the lower part of the body; then rods are applied to the back till ſome perſon gives notice to deſiſt, by crying out, enough. This puniſhment is conſidered in Ruſſia merely as a correction of the police, exerciſed on the ſoldier by military diſcipline, by the nobility on their ſervants, and by perſons in authority over all ſuch as are under their command. After the acceſſion of Elizabeth to the throne of Ruſſia, the puniſhments were reduced to two kinds, viz. the padogi and KNOUT.

PADUA, an ancient, large, and celebrated city of Italy, with a univerſity and a biſhop's ſee. It is alſo capital of the Paduano; but is much leſs conſiderable than it was formerly: for it now contains no more than 30,000 inhabitants, whereas it formerly had 100,000, and many of the houſes are gone to ruin: however, the hall where juſtice is adminiſtered is a ſuperb ſtructure. The cathedral church, and the college of the univerſity, are in that part called the *Old Town;* and there are piazzas under all the houſes, where perſons may walk without being expoſed to the weather. The garden of the univerſity is curious, on account of the number of plants. Here a ſtudent may take his degrees, let him be of what ſect of Chriſtianity he will; nay, though he ſhould be a Jew or a Turk. The patron of this city is St Anthony, who lies in the cathedral; they have ſuch a veneration for him, that the beggars do not aſk charity in the name of God, but for the love of St Anthony. The Jews live in a diſtinct part of the city; and the neighbouring mountains produce excellent wine and oil, with delicious fruit. It was taken by the Venetians in 1706. It is ſeated on the rivers Brentac and Bachiglione, in a fine plain, and is about ſeven miles in circumference. E. Long. 11. 55. N. Lat. 45. 24.

PADUAN, among medaliſts, a modern medal ſtruck in imitation of the antique, or a new medal ſtruck with all the marks and characters of antiquity. This name is properly applicable to thoſe medals only that were ſtruck in the ſeventh century by an Italian painter born at Padua; who ſucceeded ſo well in the impoſture, that the beſt judges are at a loſs to diſtinguiſh his medals from the genuine ones. Though it is frequently uſed in general for all medals of this kind.

PADUANO, a ſmall province of Italy, in the territory of Venice, bounded on the eaſt by the Dogado, on the ſouth by the Poleſino di Rovigo, on the weſt by the Veroneſe, and on the north by the Vicentino. Its ſoil is well watered; and is one of the moſt fertile in Italy. The province is about 40 miles in length, and 35 in breadth. Padua is the capital town.

Padus || Pagan.

PADUS, anciently called *Eridanus*, eſpecially by the Greeks; a river famous for the fable of Phaeton (Ovid). It riſes in Mount Veſulus, in the Alpes Cothiæ, from three ſprings, dividing the Ciſalpine Gaul into the Tranſpadana and Ciſpadana, (Strabo); and ſwelled by other rivers falling into it on each ſide from the Alps and Apennines, it diſcharges itſelf with a courſe from weſt to eaſt, at ſeven mouths, into the Adriatic (Mela). The lake through which it diſcharges itſelf into the ſea, is called by the natives the *Seven Seas*. Now the *Po*.

PADUS, a ſpecies of cherry. See PRUNUS, BOTANY *Index*.

PÆAN, among the ancient pagans, was a ſong of rejoicing ſung in honour of Apollo, chiefly uſed on occaſions of victory and triumph. See APOLLO.

PÆAN, in the ancient poetry, a foot conſiſting of four ſyllables; of which there are four kinds, the pæan primus, ſecundus, &c.

The pæan primus conſiſts of one long ſyllable and three ſhort ones, or a trochæus and pyrrhichius, as *temporibus*; the pæan ſecundus conſiſts of a ſhort ſyllable, a long, and two ſhort, or an iambus and a pyrrhichius, as *potentia*; the pæan tertius conſiſts of two ſhort ſyllables, a long and a ſhort one, or a pyrrhichius and a trochæus, as *animatus*; the pæan quartus conſiſts of three ſhort ſyllables and a long one, or a pyrrhichius and iambus, as *celeritas*.

PÆDEROTA, a genus of plants belonging to the pentandria claſs, and in the natural method ranking under the 30th order, *Contortæ*. See BOTANY *Index*.

PÆDO BAPTISM: infant baptiſm, or that conferred on children; from παις *infant*, and βαπτισμος *baptiſm*. This has been the ſubject of great controverſy in the church. See ANABAPTISTS, BATISTS, &c.

PÆONIA, PIONY, a genus of plants belonging to the polyandria claſs, and in the natural method ranking under the 26th order, *Multiſiliquæ*. See BOTANY *Index*.

PÆSTUM, called *Poſidonia* by the Greeks, a town of Lucania, on the Sinus Pæſtinus; an ancient colony prior to the firſt Punic war, according to Livy; but later, according to Velleius. *Pæſtanæ roſæ* were in great eſteem, and produced twice a-year (Virgil, Ovid).

PAGAN, BLAISE FRANCOIS COMTE DE, an eminent French mathematician, was born at Avignon in Provence, March 3. 1604; and took to the profeſſion of a ſoldier at fourteen, having been bred to it with the greateſt care. In 1620 he was engaged at the ſiege of Caen, in the battle of Pont de Ce, and the reduction of the Navareins, and the reſt of Bearn; where he ſignalized himſelf, and acquired a reputation far ſurpaſſing his years. He was preſent, in 1621, at the ſiege of St John d'Angeli, as alſo that of Clarac and Montauban, where he loſt his left eye by a muſket-ſhot. At this ſiege he had another loſs, which equally afflicted him, viz. that of the conſtable of Luynes, who died there of a ſcarlet fever. The conſtable was a near relation, and had been his patron at court. He did not, however, ſink under the misfortune, but on the contrary took freſh ſpirits from the neceſſity he was now in of truſting ſolely to himſelf. Accordingly there happened after this time neither ſiege, battle, nor any other occaſion, in which he did not ſignalize himſelf by ſome effort of courage and conduct. At the paſſage of the Alps, and the barricade of Suza, he put himſelf at the head of the forlorn hope, conſiſting of the braveſt youths among the guards; and undertook to arrive the firſt at the attack, by a private way which was extremely dangerous; when, having gained the top of a very ſteep mountain, he cried out to his followers, "See the way to glory!" He ſlipt along this mountain; and, his companions following him, they came firſt to the attack, as they wiſhed to do. They immediately began a furious aſſault; and, the army coming to aſſiſt, they forced the barricades. He had afterwards the pleaſure of ſtanding on the left hand of the king, when his majeſty related this heroic action to the duke of Savoy with the deſerved commendations, in the preſence of a very full court. When the king laid ſiege to Nancy in 1633, our hero had the honour to attend his ſovereign, in drawing the lines and forts of circumvallation. In 1642 his majeſty ſent him to the ſervice in Portugal, in the poſt of field marſhal. In this ſame year he unfortunately loſt his eye ſight by a diſtemper. But though he was thus diſabled from ſerving his country with his conduct and courage, he reaſſumed, with greater vigour than ever, the ſtudy of the mathematics and fortification; and, in 1645, gave the public a treatiſe on this latter ſubject. It was allowed by all who underſtood the ſcience, that nothing had then appeared that was preferable to it; and, indeed, whatever improvements have been made ſince, they have perhaps been derived chiefly from this treatiſe, as concluſions from their principles. In 1651 he publiſhed his Geometrical Theorems, which ſhow a perfect knowledge of all the parts of the mathematics. In 1655 he printed A Paraphraſe, in French, of the Account, in Spaniſh, of the River of the Amazons, by Father de Rennes, a Jeſuit; and we are aſſured, that, though blind, he drew the chart of that river and the parts adjacent which is ſeen in this work. In 1657 he publiſhed The Theory of the Planets, cleared from that multiplicity of eccentric circles and epicycles, which the aſtronomers had invented to explain their motions. This work diſtinguiſhed him among aſtronomers as much as that of fortifications did among engineers; and he printed, in 1658, his Aſtronomical Tables, which are very ſuccinct and plain. Few great men are without ſome foible: Pagan's was that of a prejudice in favour of judicial aſtrology; and though he is more reſerved than moſt others, yet we cannot put what he did on that ſubject among thoſe productions which do honour to his underſtanding. He was beloved and reſpected by all perſons illuſtrious for rank as well as ſcience; and his houſe was the rendezvous of all the polite and worthy both in city and court. He died at Paris, Nov. 18. 1665; and was never married. The king ordered his firſt phyſician to attend him in his illneſs, and gave ſeveral marks of the extraordinary eſteem which he had for his merit.

Pagan.

He had an univerſal genius; and, having turned himſelf entirely to the art of war, and particularly to the branch of fortification, he made extraordinary progreſs in it. He underſtood mathematics not only better than is uſual for a gentleman whoſe view is to puſh his fortune in the army, but even to a degree of perfection ſuperior to that of the ordinary maſters who teach that ſcience. He had ſo particular a genius for this kind of learning, that he obtained it more readily by meditation

than

Pagan
ii
Paginus.

than by reading authors upon it; and accordingly ſpent leſs time in ſuch books than he did in thoſe of hiſtory and geography. He had alſo made morality and politics his particular ſtudy; ſo that he may be ſaid to have drawn his own character in his *Homme Heroique*, and to have been one of the completeſt gentlemen of his time. Louis XIII. was heard to ſay ſeveral times, that the count de Pagan was one of the moſt worthy, beſt turned, moſt adroit, and moſt valiant men, in his kingdom.—That branch of his family, which removed from Naples to France in 1552, became extinct in his perſon.

PAGAN, a heathen, gentile, or idolater; one who adores falſe gods. See MYTHOLOGY.

PAGANALIA, certain feſtivals obſerved by the ancient Romans in the month of January. They were inſtituted by Servius Tullius, who appointed a certain number of villages (*pagi*), in each of which an altar was to be raiſed for annual ſacrifices to their tutelar gods; at which all the inhabitants were to aſſiſt, and give preſents in money, according to their ſex and age, by which means the number of country-people was known. The ſervants upon this occaſion offered cakes to Ceres and Tellus, to obtain plentiful harveſts.

PAGANELLUS, a ſpecies of fiſh. See GOBIUS, ICHTHYOLOGY *Index*.

PAGANISM, the religious worſhip and diſcipline of pagans; or, the adoration of idols and falſe gods. See IDOLATRY, MYTHOLOGY, and POLYTHEISM.

PAGEANT, a triumphal car, chariot, arch, or other like pompous decoration, variouſly adorned with colours, flags, &c. carried about in public ſhows, proceſſions, &c.

PAGI, ANTONY, a very famous Cordelier, and one of the ableſt critics of his time, was born at Rogne in Provence in 1624. He took the habit in the convent at Arles in 1641, and was at length four times provincial of his order; but his religious duties did not prevent his vigorous application to the ſtudy of chronology and eccleſiaſtical hiſtory, in which he excelled. His moſt conſiderable work is, A Critique upon the Annals of Baronius; where, following the learned cardinal year by year, he has rectified an infinite number of miſtakes both in chronology and in the repreſentation of facts. He publiſhed the firſt volume in 1689, dedicated to the clergy of France, who allowed him a penſion: the whole was printed after his death, in 4 vols folio, at Geneva, in 1705, by the care of his nephew Francis Pagi, of the ſame order. He wrote ſome other things before his death, which happened in 1699; and had the character of an able hiſtorian as well as of a learned and candid critic. His nephew Francis, above mentioned, wrote A Chronological Abridgement of the Hiſtory of the Popes, in Latin, 3 vols 4to. Francis had alſo a nephew, Anthony Pagi, who added three more volumes to the Hiſtory of the Popes; of which two more were intended, if not executed.

PAGNINUS, SANCTES, an Italian dominican, eminent for his ſkill in oriental languages and biblical learning, was born at Lucca in 1466, and became afterwards an eccleſiaſtic of the order of St Dominic. He was deeply and accurately ſkilled in Latin, Greek, Hebrew, Chaldee, and Arabic; but he was particularly excellent in the Hebrew. He applied himſelf to examine the vulgar tranſlation of the Scriptures; and believing it to be either not of Jerome, or greatly corrupted, he undertook to make a new one from the preſent Hebrew text; in which he meant to imitate St Jerome, who ſet about making a new tranſlation at a time when the church would admit no other but the Septuagint. This deſign of Pagninus, ſo early after the reſtoration of letters, ſeemed a bold one; yet ſuch was the reputation of the man, that it was approved by Pope Leo X. who promiſed to furniſh him with all neceſſary expences for carrying on the work: and, beſides, we find at the beginning of this tranſlation, which was printed at Lyons in 1527, two letters of the ſucceeding popes, Hadrian VI. and Clement VII. which licenſed the printing of it. Pagninus, in his Letters to Pope Clement, for the printing of this tranſlation, openly declares, that the Vulgar edition, as it is at preſent, is not St Jerome's; yet adds, that he has retained in his tranſlation as much of it as he could. It appears by a letter of Picus Mirandula to Pagninus, that he had ſpent 25 years upon this tranſlation. It is the firſt modern tranſlation of the Bible from the Hebrew text; and the Jews who read it affirmed, that it agreed exactly with the Hebrew, and was in ſome reſpects ſuperior to the ancient tranſlations. The great fault of Pagninus was, that he adhered with too great ſervility to the original text; and this ſcrupulous attachment made his tranſlation, ſays Father Simon, "obſcure, barbarous, and full of ſoleciſms. He imagined, that to make a faithful tranſlation of the Scriptures, it was neceſſary to follow exactly the letter according to the ſtrictneſs of grammar. This, however, is quite contrary to his pretended exactneſs, becauſe two languages ſeldom agree in their ways of ſpeaking; and therefore, inſtead of expreſſing the original in its proper purity, he defaces and robs it of all its ornaments." Father Simon nevertheleſs allows the great abilities and learning of Pagninus; and all the later commentators and tranſlators of the Scriptures have agreed in giving him his juſt praiſe. Huetius, though he thinks Father Simon's criticiſm of him juſt and well grounded, yet propoſes his manner as a model for all tranſlators of the ſacred books: *Scripturæ interpretandæ rationis utile nobis exemplar propoſuit Sanctus Pagninus*. He alſo tranſlated the New Teſtament from the Greek, as he had done the Old from the Hebrew, laying the Vulgar all the while before him; and dedicated it to Pope Clement VII. He was author of a Hebrew Lexicon, and a Hebrew Grammar: which Buxtorf, who calls him *vir linguarum Orientalium peritiſſimus*, made great uſe of in compiling his. He died in 1536, aged 70. Luther ſpoke of him and his tranſlations in terms of the higheſt applauſe.

Pagninus,
Pago.

PAGO, an iſland in the gulf of Venice, ſeparated from the continent of Morlachia by a narrow channel. The ancient geographers have left us no deſcription of it; though (as Fortis obſerves) its form (A), extent, and rich produce, unqueſtionably deſerved it." And this

(A) Its figure is indeed remarkably irregular, its breadth being in no proportion to its length; for one of the extremities, called *Punta di Loni*, is above ten miles long, and leſs than one broad. Almoſt all the circumference is

Pago. this is the more unaccountable, as we know the Romans were well acquainted with it; and on the other iſlands adjoining to it are many veſtiges of buildings, inſcriptions, tiles, and hewn ſtones, all ſure ſigns of Roman habitations. Its ancient name was in all probability *Portunata*. " This iſland (ſays Mr Fortis *) is extended from north to ſouth over againſt maritime Croatia, or the mountain Morlacca. It is about 50 miles long; its breadth is unequal. One particular circumſtance diſtinguiſhes it from all the other iſlands of the Adriatic, and is a large internal ſalt-water lake 15 miles long from ſouth to north, into which the ſea enters by a canal not above a quarter of a mile broad in ſome places. This lake is frequented by the tunny fiſh, which, when once in, cannot return again to the ſea. There are alſo two ſmaller lakes on the iſland; one near Vlaſſich, abounding in fiſh, particularly eels; and one near the hamlet of Slabine.

* *Travels into Dalmatia.*

" In this iſland the winter is dreadfully cold, and the ſummer ſcorchingly hot. Thoſe who have been there in the winter time ſpeak of it as a Siberia quite covered with ſnow and ice, and always expoſed to the cold north wind; I, who was there in the hot ſeaſon, thought it equal to the moſt ſcorching parts of the world. The naked rocks, which not only form the organization, but alſo the ſuperficies of almoſt all the iſland; the narrowneſs of the valleys; the reverberation of the water of the lake, generally quite calm in ſummer; multiply the heat ſo prodigiouſly among thoſe ſtones, that the vines, which are planted all round the lake, ripen their grapes by the beginning of Auguſt; and the other products that grow there anticipate the uſual time of maturity in the ſame manner. The meteors are exceedingly irregular in the ſummer time; ſudden whirlwinds are frequent, and heavy ſhowers of rain: the laſt are hurtful to the inhabitants of one part of the iſland, and are favourable to the cultivation of the oppoſite end.

" They cultivate neither corn nor oil on this iſland; but it produces plenty of wine, and an immenſe quantity of ſalt. The other products are wool, honey, and a little ſalt fiſh. The quantity of wine amounts annually, on a medium, to 40,000 Venetian barrels; and from the huſks, they diſtil 2000 barrels of *rakia* or brandy. The ſalt, in 1663, amounted to 800,000 Venetian *ſtare*. The ſalt-works are well contrived and well kept: they extend along a ſhallow pool, which forms the eaſtern extremity of the lake within for four miles in length and about half a mile in breadth. On the ſides of this ſen the beſt part of the vines lie; but the upper part of the hills on each ſide is altogether naked and barren; there is not even a ſufficiency of fire-wood, and the inhabitants are obliged to provide themſelves elſewhere. The ſoil at the foot of the hills, where the vines are planted, is full of gravel and ſmall ſtones: and hence the wine is of good quality. The air is not unhealthful, notwithſtanding the vicinity of the ſalt pits; but the frequent high winds carry off the noxious exhalations. The moſt conſiderable product of the iſland is the ſalt. The greateſt part of the people of Pago live by working in the ſalt pits, and have a comfortable ſubſiſtence regularly paid by the government: it is therefore a very important circumſtance for the inhabitants of the city to have a dry ſummer; and hence the ignorant vulgar look upon rain as a miſchief brought upon the country by the force of witchcraft. In conſequence of this idea, they elect a friar to exorciſe the meteors, and keep the rain off the iſland. If, notwithſtanding the poor friar's endeavours, the ſummer happens to be rainy, he loſes his reputation and his bread; but if two or three dry ſeaſons follow ſucceſſively, he meets with great reverence and advantage. Part of the ſalt works belongs to the government, and the reſt to private proprietors; they are meliorated every year; and for that end the public lends money to thoſe proprietors who want it, and who without that aſſiſtance could not make the requiſite improvements. Pago.

" Many veſtiges of ancient habitations ſtill remain on the iſland of Pago, as well as of walled places, which either have been deſtroyed by the incurſions of enemies or by time. Hiſtorians ſay that the iſland was often abandoned by its inhabitants; and indeed it is rather to be wondered at how men ever could reſolve to ſettle in ſo wretched a country. The ſmall number of inhabitants, after ſo many years of peace and tranquillity under the Venetian government, evidently proves how little the iſland is really habitable. The town of Pago was built by the Venetians about 300 years ago; and contains upwards of 2000 inhabitants, and all the reſt of the iſland ſcarcely 900. The difficulty of acceſs to the city of Pago, and the ill accommodation that ſtrangers meet with, make it very little frequented. Hence the inhabitants are as wild and unpoliſhed as if they lay at the greateſt diſtance from the ſea and the commerce of polite people. The gentry, who pretend to ſhow their manners different from thoſe of the vulgar, are truly groteſque figures, both in their dreſs, behaviour, and inſolent pretenſions. The ignorance of their clergy is incredible; a prieſt of the greateſt conſequence there, and who was thought a man of learning, did not know how Pago was called in Latin. There are two convents of friars in Pago and one of nuns; and ſeveral churches, all in very bad order, and ill ſerved. At Terra Vecchia alſo there is a convent of Franciſcan monks; a race of men who, under various names and diſguiſes, infeſt every place where credulous ignorance can be perſuaded to maintain the idle and ſuperſtitious. One ſuperſtitious cuſtom,

is diſmal, without trees or any kind of viſible plants or graſs, ſteep, craggy, and uninhabited. On entering the lake through the channel that communicates with the ſea, nothing is to be ſeen either on the right or left but bare hanging rocks, ſo disfigured on the outſide by the violent percuſſion of the waves, that the ſtratification is hardly diſtinguiſhable. In general, the ſtone of the iſland is of the ſame kind as the Iſtrian, or *breccia*; and, beſides, there are large ſtrata of blue and yellowiſh ſandſtone. The channel, or inward bay of Pago, is not a harbour; on the contrary, it is a very dangerous ſtation, and even inacceſſible in winter, when the north wind blows with ſuch fury, that the inhabitants of the town dare not ſtir out of their houſes, and much leſs the few that are ſcattered over the country. The ſky appears always cloudy in that ſeaſon, by the thick miſt that ariſes from the repercuſſion of the waves on that long chain of rough and hollow rocks.

Pagod. cuſtom, amongſt a variety of others, exiſts among their women, and particularly among thoſe who have been married but a ſhort time: if their huſband happens to die, they tear their hair out in good earneſt, and ſcatter it on the coffin; and this ceremony is ſo much conſecrated by cuſtom, that no woman, even though ſhe had notoriouſly hated her huſband, would fail in performing it."

PAGOD, or PAGODA, a name given by the Eaſt Indians to the temples where they worſhip their gods. We ſhall not in this place enter into a full detail of the ſeveral pagodas of different nations, and their peculiar circumſtances. Theſe matters ſeem to come in more properly under the *religion*, or, as others will call it, the *ſuperſtition*, of the people to whom they belong. We ſhall therefore content ourſelves in the preſent article with an account of a paper in the *Aſiatic Reſearches*, concerning the ſculptures, &c. at Mavalipuram, a few miles north of Sadras, and known to ſeamen by the name of the *ſeven pagodas*.

The monuments which Mr Chambers (who communicated the paper) deſcribes, appear, he ſays, to be the ruins of ſome great city decayed many centuries ago. "They are ſituated cloſe to the ſea, between Covelong and Sadras, ſomewhat remote from the high road that leads to the different European ſettlements. And when viſited in 1776, there was ſtill a native village adjoining to them which retained the ancient name, and in which a number of *bramins* reſided that ſeemed perfectly well acquainted with the ſubjects of moſt of the ſculptures to be ſeen there.—The rock, or rather hill of ſtone, on which great part of theſe works are executed, is one of the principal marks for mariners as they approach the coaſt, and to them the place is known by the name of the *Seven Pagodas*, poſſibly becauſe the ſummits of the rock have preſented them with that idea as they paſſed: but it muſt be confeſſed that no aſpect which the hill aſſumes as viewed on the ſhore, ſeems at all to authorize this notion; and there are circumſtances, which will be mentioned in the ſequel, that would lead one to ſuſpect that this name has ariſen from ſome ſuch number of pagodas that formerly ſtood here, and in time have been buried in the waves." The rock here mentioned, as it riſes abruptly out of a level plain of great extent, naturally engroſſes the attention of the eye. It conſiſts chiefly of a ſingle ſtone; and in its ſhape (which is ſingular and romantic), in a diſtant view, it has the appearance of an antique and lofty edifice. Works of imagery and ſculpture crowd thicker upon the eye on a nearer approach, and at firſt ſight at leaſt favours the idea of a petrified town, which, through the credulity of travellers *, has been ſuppoſed to exiſt in various parts of the world. "Proceeding on by the foot of the hill on the ſide facing the ſea, there is a pagoda riſing out of the ground, of one ſolid ſtone, about 16 or 18 feet high, which ſeems to have been cut upon the ſpot out of a detached rock that has been found of a proper ſize for that purpoſe. The top is arched, and the ſtyle of architecture according to which it is formed, different from any now uſed in thoſe parts." Beyond this a numerous group of human figures in baſs relief, conſiderably larger than life, attract attention. They repreſent conſiderable perſons, and their exploits, many of which are now very indiſtinct through the injuries of time, aſſiſted by the corroding nature of the ſea air; others, while protected from that element, are as freſh as when recently finiſhed. Pagod.

The hill, which is at firſt of eaſy aſcent, "is in other parts rendered more ſo, by very excellent ſteps cut out in ſeveral places, where the communication would be difficult or impracticable without them. A winding ſtair of this ſort leads to a kind of temple cut out of the ſolid rock, with ſome figures of idols in high relief upon its walls, very well finiſhed and perfectly freſh, as it faces the weſt, and is therefore ſheltered from the ſea air." This temple our author conjectures to have been a place of worſhip appertaining to a palace; ſome remains of which ſtill exiſt, and to which there is a paſſage from the temple by another flight of ſteps. This conjecture (for it is brought forward as merely ſuch) is in ſome meaſure favoured by ſeveral ruins ſtill remaining, and by the tradition of the bramins who inhabit the place. This finiſhes the objects "on that part of the upper ſurface of the hill, the aſcent to which is on the north; but on deſcending from thence, you are led round the hill to the oppoſite ſide, in which there are ſteps cut from the bottom to a place near the ſummit, where is an excavation that ſeems to have been intended for a place of worſhip, and contains various ſculptures of Hindoo deities. The moſt remarkable of theſe is a gigantic figure of *Viſhnou* (A), aſleep on a kind of bed, with a huge ſnake wound about in many coils by way of pillow for his head; and theſe figures, according to the manner of this place, are all of one piece hewn from the body of the rock." Theſe works, however, although they are unqueſtionably ſtupendous, are, in our author's opinion, ſurpaſſed by others about a mile and a half to the ſouthward of the hill. "They conſiſt of two pagodas of about 30 feet long by 20 feet wide, and about as many in height, cut out of the ſolid rock, and each conſiſting originally of one ſingle ſtone. Near theſe alſo ſtand an elephant full as big as life, and a lion much larger than the natural ſize, but very well executed, each hewn alſo out of one ſtone. None of the pieces that have fallen off in cutting theſe extraordinary ſculptures are now to be found near or any where in the neighbourhood of them, ſo that there is no means of aſcertaining the degree of labour and time that has been ſpent upon them, nor the ſize of the rock or rocks from which they have been hewn; a circumſtance which renders their appearance the more ſtriking and ſingular. And though their ſituation is very near the ſea beach, they have not ſuffered at all by the corroſive air of that element, which has provided them with a defence againſt itſelf, by throwing up before them a high bank that completely ſhelters them. There is alſo a great ſymmetry in their form, though that of the pagodas is different from the ſtyle of architecture according to which idol temples are now built in that country. The latter reſembles the Egyptian; for the towers are always pyramidical, and the gates and roofs flat and without arches; but theſe ſculptures approach nearer to the Gothic

* See *Shaw's Travels*, p. 155, &c.

(A) See a figure of *Viſhnou* in the plate of Indian gods, with its deſcription, under the article POLYTHEISM.

Pagod. thic taſte, being ſurmounted by arched roofs or domes that are not ſemicircular, but compoſed of two ſegments of circles meeting in a point at top." Our author obſerves, that the lion in this group, as well as one on a ſtone couch in what he took to be a royal palace, are perfectly juſt repreſentations of the true lion, and the natives there give them the name which is always underſtood to mean a lion in the Hindoo language, to wit, *ſing*; but the figure which they have made to repreſent that animal in their idol temples for centuries paſt, though it bears the ſame appellation, is a diſtorted monſter totally unlike the original; inſomuch that it has from hence been ſuppoſed, that the lion was not anciently known in this country, and that *ſing* was a name given to a monſter that exiſted only in Hindoo romance. But it is plain that that animal was well known to the authors of theſe works, who, in manners as well as arts, ſeem to have differed much from the modern Hindoos.

"There are two circumſtances attending theſe monuments which cannot but excite great curioſity, and on which future inquiries may poſſibly throw ſome light. One is, that on one of the pagodas laſt mentioned, there is an inſcription of a ſingle line, in a character at preſent unknown to the Hindoos. It reſembles neither the Deyva-nâgre, nor any of the various characters connected with or derived from it, which have come to the writer's knowledge from any part of Hindoſtan. Nor did it, at the time he viewed it, appear to correſpond with any character, Aſiatic or European, that is commonly known. He had not then, however, ſeen the alphabet of the Balic, the learned language of the Siameſe, a ſight of which has ſince raiſed in his mind a ſuſpicion that there is a near affinity between them, if the character be not identically the ſame. But as theſe conjectures, after ſuch a lapſe of time, are ſomewhat vague, and the ſubject of them is perhaps yet within the reach of our reſearches, it is to be hoped that ſome method may be fallen upon of procuring an exact copy of this inſcription.

"The other circumſtance is, that though the outward form of the pagodas is complete, the ultimate deſign of them has manifeſtly not been accompliſhed, but ſeems to have been defeated by ſome extraordinary convulſion of nature. For the weſtern ſide of the moſt northerly one is excavated to the depth of four or five feet, and a row of pillars left on the outſide to ſupport the roof; but here the work has been ſtopped, and an uniform rent of about four inches breadth has been made throughout the ſolid rock, and appears to extend to its foundations, which are probably at a prodigious depth below the ſurface of the ground. That this rent has happened ſince the work began, or while it was carrying on, cannot be doubted; for the marks of the maſons tools are perfectly viſible in the excavated part on both ſides of the rent, in ſuch a manner as to ſhow plainly that they have been divided by it. Nor is it reaſonable to ſuppoſe, that ſuch a work would ever have been deſigned or begun upon a rock that had previouſly been rent in two. Nothing leſs than an earthquake, and that a violent one, could apparently have produced ſuch a fiſſure in the ſolid rock: and that this has been the caſe in point of fact, may be gathered from other circumſtances, which it is neceſſary to mention in an account of this curious place. The great rock above deſcribed is at ſome ſmall Pagod. diſtance from the ſea, perhaps 50 or 100 yards, and in that ſpace the Hindoo village before mentioned ſtood in 1776. But cloſe to the ſea are the remains of a pagoda built of brick, and dedicated to Sib, the greateſt part of which has evidently been ſwallowed up by that element; for the door of the innermoſt apartment, in which the idol is placed, and before which there are always two or three ſpacious courts ſurrounded with walls, is now waſhed by the waves, and the pillar uſed to diſcover the meridian at the time of founding the pagoda is ſeen ſtanding at ſome diſtance in the ſea. In the neighbourhood of this building there are ſome detached rocks, waſhed alſo by the waves, on which there appear ſculptures, though now much worn and defaced. And the natives of the place declared to the writer of this account, that the more aged people among them remembered to have ſeen the tops of ſeveral pagodas far out in the ſea, which being covered with copper, (probably gilt) were particularly viſible at ſunriſe, as their ſhining ſurface uſed then to reflect the ſun's rays, but that now that effect was no longer produced, as the copper had ſince become incruſted with the mould and verdegreaſe."

From theſe circumſtances our author conjectures, and we think reaſonably, that the magnificent city of which theſe appear to be part of the ruins, has been deſtroyed partly by an earthquake, by which the rock was rent, and partly by a ſudden inundation of the ſea, occaſioned by this commotion of the earth. The bramins give an account of this matter peculiar to themſelves, filled with extravagance, fable, and folly; from which, however, with the aſſiſtance of ancient monuments, coins, and inſcriptions, ſome probable conjectures at leaſt, if not important diſcoveries, may, it is hoped, be made on theſe ſubjects, which are far from being unintereſting to us either as men, philoſophers, or Chriſtians. Our author thinks, therefore, that the inſcription on the pagoda mentioned above is an object which merits conſiderable attention; and he defends, by very reputable authorities, the conjecture which places it among the languages of *Siam*; but which it is unneceſſary for us either to abridge or to tranſcribe. In the courſe of this inquiry, our author remarks a very near reſemblance between *Sommonacodom*, the idol of the *Siameſe*, and the great idol Buddou, held ſacred by the *Chingelays*; and this reſemblance extends alſo to their prieſts. But from the detail of circumſtances which our author brings forward, and to which we refer, he thinks this a ſyſtem of religion different from that of the *Veds*, and ſome of them totally inconſiſtent with the principles and practice of the *bramins*; none of whom, as far as we can collect from Mr Knox†, exiſt among the Chingelays, whoſe religion is totally different from that of the preſent Hindoos. The only part in which there ſeems to be any agreement is in the worſhip of the Debtahs, which has probably crept in among them from their Tamulian neighbours, but that is carried on in a manner very different from the braminical ſyſtem, and appears to be held by the nation at large in very great contempt, if not abhorrence. Knox's account of it is this: "Their temples (i. e. thoſe of the Debtahs) are called *covels*," which is the Tamulic word for pagoda. He then goes on to ſay, "a man piouſly diſpoſed builds a ſmall houſe at his own charge,

† *Hiſt. of Ceylon.*

Pagod. charge, which is the temple, and himſelf becomes prieſt thereof. This houſe is ſeldom called *God's houſe*, but moſt uſually *Jacco* the *devil's*." But of the prevailing religion he ſpeaks in very different terms, and deſcribes it as carried on with much parade and ſplendour, and attended with marks of great antiquity. "The pagodas or temples of their gods (ſays he) are ſo many, that I cannot number them. Many of them are of rare and exquiſite work, built of hewn ſtone, engraven with images and figures, but by whom and when I could not attain to know, the inhabitants themſelves being ignorant therein. But ſure I am they were built by far more ingenious artificers than the Chingelays that now are on the land. For the Portugueſe in their invaſions have defaced ſome of them, which there is none found that hath ſkill enough to repair to this day." In another place, he ſays, "here are ſome ancient writings engraven upon rocks, which puzzle all that ſee them. There are divers great rocks in divers parts in Cande Uda, and in the northern parts. Theſe rocks are cut deep with great letters for the ſpace of ſome yards, ſo deep that they may laſt to the world's end. No body can read them or make any thing of them. I have aſked Malabars and Gentoos, as well as Chingelays and Moors, but none of them underſtood them. There is an ancient temple, Goddiladenni in Yattanour, ſtands by a place where there are of theſe letters." From all which the antiquity of the nation and their religion is ſufficiently evident, and from other paſſages it is plain, that the worſhip of Buddou, in particular, has been from remote times a very eminent part of their religion; for the ſame author, ſpeaking of the tree at Anurodgburro, in the northern part of the iſland, which is ſacred to Buddou, ſays, "the due performance of this worſhip they reckon not a little meritorious: inſomuch that, as they report, 90 kings have reigned there ſucceſſively, where, by the ruins that ſtill remain, it appears they ſpared not for pains and labour, to build temples and high monuments to the honour of this god, as if they had been born to hew rocks and great ſtones, and lay them up in heaps. Theſe kings are now happy ſpirits, having merited it by theſe labours." And again he ſays, "For this god, above all others, they ſeem to have a high reſpect and devotion," &c.

Such is the nature of Mr Chamber's communication, as far as it reſpects pagodas; a ſubject to which the *Aſiatic Society* will doubtleſs again direct their attention; and from the penetration and aſſiduity of its members we have much to expect. Other parts of this paper ſhall be brought forwards under other articles, to which we refer. Few reſearches are of more ſervice to true religion, than thoſe which give us a correct view of the falſe and ſuperſtitious modes of worſhip practiſed by men who have had no light but reaſon, or weak and corrupted traditions. They are uſeful likewiſe to the philoſopher, as they always tend to give us a minuter view of the real nature of man as he is in himſelf, and ſhow with ſufficient ſtrength the imbecillity of the human intellect without ſome ſupernatural aid. The external pomp of all Pagan religions ſeems to have been their eſſence; a circumſtance which alone ſhows the neceſſity of that, the intention of which is to reform the heart. See SIAM, SOMMONACODON, TEMPLE, &c.

PAGOD, or PAGODA, is alſo the name of a gold and ſilver coin, current in ſeveral parts of the Eaſt Indies. Pagod, Pain.

PAIN, an uneaſy ſenſation, ariſing from a ſudden and violent ſolution of continuity, or other accident in the nerves, membranes, veſſels, muſcles, &c. of the body. Pain, according to ſome, conſiſts in a motion of the organs of ſenſe; and, according to others, it is an emotion of the ſoul occaſioned by thoſe organs.

As the brain is the ſeat of ſenſation, ſo it is of pain. Boerhaave, and moſt other authors on this ſubject, aſſign a ſtretching of the nerves as the only immediate cauſe of pain: but as the nerves do not appear to conſiſt of fibres, this cauſe of pain does not ſeem to be well-founded; nor indeed will it be eaſy to treat this ſubject clearly, but in proportion as the means of ſenſation are underſtood.

Many kinds of pain are met with in authors: ſuch as, A gravitative pain; in which there is a ſenſe of weight on the part affected, which is always ſome fleſhy part, as the liver, &c. A pulſative pain; which, Galen ſays, always ſucceeds ſome remarkable inflammation in the containing parts, and is obſerved in abſceſſes while ſuppurating. A tenſive pain, which is alſo called a *diſtending* pain; it is excited by the diſtenſion of ſome nervous, muſcular, or membranous part, either from ſome humour, or from flatulence. An acute pain is, when great pain is attended with quick and lively ſenſations: A dull pain is, when a kind of numbneſs is as much complained of as the pain is.

The mediate and more remote cauſes of pain are generally obvious; and when this is the caſe, the cure will conſiſt for the moſt part in removing them: for though in many inſtances the chief complaint is very diſtant from the ſeat of thoſe cauſes, yet their removal is the proper method of relief. See MEDICINE, *paſſim*.

Perhaps all pains may be included, with irritation, in thoſe that have ſpaſm or inflammation for their ſource. When pain is owing to inflammation, the pulſe is quicker than in a natural ſtate; it is alſo generally full, hard, and tenſe; the pain is equal, throbbing, and unremitting. If a ſpaſm be the cauſe, the pulſe is rarely affected; at intervals the pain abates, and then returns with ſome degree of aggravation; gentle motion ſometimes abates, or even cures, in ſome inſtances; but in inflammatory caſes no ſuch effects are ever experienced. See Dr Lobb's *Treatiſe on Painful Diſtempers*.

The pain ſo frequently attendant on women in childbed, called *after-pains* (from their happening only after being delivered of a child), are often occaſioned by attempts to bring away coagulated blood, which is a needleſs endeavour. When no improper treatment in delivering the ſecundines can be ſuſpected, the irritability of the uterus alone is to be conſidered as the cauſe. Care ſhould be taken not to confound theſe after-pains with, or miſtake the pains attending puerperal fevers for the colic. After-pains come by fits, and ſoon go off; but return at different intervals, which are longer each day, and after two or three days are uſually at an end, though ſometimes they continue ſeven or eight: notwithſtanding theſe pains, the lochia flow properly, and generally more abundantly after the ceſſation of each fit; this does not happen in colicky complaints, nor is the belly ſo free from tumefaction when the puerperal fever is attendant.

As theſe pains are of the ſpaſmodic kind, anodynes and

Pain. and gentle opiates, with frequent draughts of warm caudle, chamomile tea, &c. with external fomentation, are all that are required in order to their relief.

Among the various cauſes of pain, a ſingular one is related in the third vol. of the *Lond. Med. Obſ. and Inq.* p. 241. &c. Some perſons who had taken cold during their being ſalivated, were afflicted with pains which reſiſted all the uſual methods of relief. At length the author of the narrative referred to ſuggeſted the cauſe; and by exciting a freſh ſalivation the pains abated; the ſpitting was kept up a little while, and permitted to abate with ſome caution; and thus the cures were completed. Pain.

PAINTING.

PAINTING is the art of repreſenting to the eye, by means of figures and colours, every object in nature that is diſcernible by the ſight: and of ſometimes expreſſing, according to the principles of phyſiognomy, and by the attitudes of the body, the various emotions of the mind. A ſmooth ſurface, by means of lines and colours, repreſents objects in a ſtate of projection; and may repreſent them in the moſt pleaſant dreſs, and in a manner moſt capable of enchanting the ſenſes. Still farther, the objects which delight us by their animation and lively colours, ſpeak to the ſoul, by giving us the image of what we hold moſt dear, or by indicating an action which inſpires us with a taſte for innocent pleaſures, with courage, and with elevated ſentiments. Such is the definition, and ſuch are the effects of painting.

By an admirable effort of human genius, painting offers to the eye every thing which is moſt valuable in the univerſe. Its empire extends over every age and country. It preſents to us the heroic deeds of ancient times as well as the facts in which we are more converſant, and diſtant objects as well as thoſe which we daily ſee. In this reſpect it may be conſidered as a ſupplement to nature, which gives us only a view of preſent objects.

The art of painting is extremely difficult in the execution; and its merit can only be appreciated by thoſe who profeſs the art.

The painter who invents, compoſes, and colours conceptions which are only agreeable, and which ſpeak merely to the eye of the ſpectator, may be reckoned to poſſeſs the firſt merit in the ſtyle of embelliſhment and decoration.

The painter who is diſtinguiſhed for noble and profound conceptions; who, by means of a perfect delineation, and colours more capable of fixing the attention than dazzling the eye, conveys to the ſpectators the ſentiments with which he himſelf was inſpired; who animates them with his genius, and makes a laſting impreſſion on their minds; this artiſt is a poet, and worthy to ſhare even in the glories of Homer.

It is in forming this great idea of his art that the painter becomes himſelf great.

But if he ſeek only to pleaſe or aſtoniſh by the illuſion of colours, he muſt reſt contented with the ſecondary merit of flattering the eye with the variety and oppoſition of tints, or of making an induſtrious aſſemblage of a great multiplicity of objects. It is in painting as it is in poetry. The man who clothes trivial or common ideas in verſe, exerciſes the profeſſion of twiſting ſyllables into a certain meaſure. The poet who clothes in good verſe, ideas and ſentiments that are merely agreeable, profeſſes an agreeable art. But he who by the magic of verſe, of ideas, of imagery, or of colours, adds ſublimity to the ſublime objects of nature, is a great poet and a great painter. He deſerves the crown which the nations have decreed to Homer, Virgil, Milton, Raphael, and the ſtatuary who modelled the ancient Apollo. It is reaſonable to place in the ſame claſs thoſe who have expreſſed the ſame ideas, whether it be in verſe or in colours, on braſs or on marble. The painter and ſtatuary, who excel in their profeſſions, deſerve all the reſpect due to genius: they are of the number of thoſe men whom nature, ſparing of her beſt gifts, grants but occaſionally to the inhabitants of the earth. If they are ſublime, they elevate the human race; if they are agreeable only, they excite thoſe ſweet ſenſations neceſſary to our happineſs.

In laying before our readers a ſuccinct account of this noble art, we ſhall, firſt, give the hiſtory of painting, including its riſe, progreſs, and decline, in ancient and modern times; an account of the ſchools, and of the different merits of painters; and a compariſon between the ancient and modern painting. Secondly, we ſhall lay down the principles of the art, and the order in which the artiſt conducts his ſtudies. Thirdly, we ſhall enumerate the different claſſes of painting, with obſervations on each. And, Fourthly, we ſhall treat of economical or houſe painting.

HISTORY.

SECT. I. *Riſe, Progreſs, and Decline of Painting in Ancient and Modern Times.*

IT is to be imagined that men muſt naturally, and very early, have conceived an idea of the firſt principles of the art of painting; the ſhadow of each plant and animal, and of every object in nature, muſt have afforded them the means of conceiving, and pointed out the poſſibility of imitating, the figures of all bodies. Thus the ſavage nations, an emblem of what men were in the infancy of ſociety, poſſeſs the firſt rudiments of this art, even before thoſe which are uſeful and almoſt neceſſary to exiſtence; their naked bodies are covered with punctures of various forms, into which they infuſe indelible colours. The next demand for this art, is to preſerve the memory of warlike exploits. It is more natural to form ſome repreſentation of an action, than to give an account of it by means of arbitrary characters. Hence the picture-writing of the Mexicans, and the more complex hieroglyphics of Egypt.

Painting conſiſted of ſimple outlines long before the expreſſion of relievo, or the application of colour. It

was

Riſe, Progreſs, and Decline.

was ſimply drawing; and the maſter-pieces of painting in that rude period were not ſuperior to the ſports of children. Although occupied about a ſingle point, it was not brought to perfection; for conſtant experience inſtructs us that men never excel in the inferior parts of an art till they are capable of carrying the whole to perfection.

After employing for a long time thoſe ſimple outlines, the next ſtep in the art of painting was to make the imitation more complete by applying colours: this was firſt accompliſhed by covering the different parts of the figure with different colours, in the ſame way that we colour maps; and ſeveral nations, as the Egyptians, the Chineſe, and the different nations of India, have never painted in a better manner. Other nations, more ingenious and more attentive to the arts, obſerving that the objects of nature have relievo, have invented what is called *claro-obſcuro*. The Greeks, the moſt ingenious, penetrating, and delicate of all, invented this part antecedent to colours; than which there cannot be a greater proof of their exquiſite taſte, as the glare of colours without judgment excites more admiration in the minds of the vulgar and ignorant, than the camaieu or drawings of one colour executed by the moſt ſkilful artiſt.

Theſe general obſervations concerning the gradual improvement of this art, will be beſt illuſtrated by a more particular attention to the ancient nations in which it flouriſhed.

1 Painting among the Egyptians.

Plato, who lived 400 years before the Chriſtian era, informs us that painting had been practiſed in Egypt for ten thouſand years; that ſome of the productions of that high antiquity were in exiſtence; and that they bore an exact reſemblance to thoſe which the Egyptians executed in his time. Without regarding the period of ten thouſand years mentioned by Plato, it is reaſonable to conſider it as an indeterminate period, which carries us back to very remote antiquity.

The figures either in the painting or ſculpture of Egypt were extremely ſtiff; the legs were drawn together, and their arms were paſted to their ſides. It appears that their only model was their mummies, and that their ſkill in anatomy was derived from embalming them. They were extremely incorrect in every part of the head; they placed the ears much higher than the noſe. Beſides, they gave the face the form of a circle inſtead of an oval; the chin was ſhort and rounded; the cheeks exceſſively ſo; and they turned upwards the corners of the mouth and eyes. Many of theſe faults may be aſcribed to the formation of the human face in Egypt; but the placing of the ears could only be founded in caprice or ignorance.

The exactneſs of the Egyptian proportion is much celebrated; but although we grant that they obſerved the proper length of the different parts of the human body, they were ſtill defective artiſts, ſince they did not obſerve the breadth, and were moreover ignorant altogether of the ſhape and ſize of the muſcles. Works converted to religious purpoſes chiefly occupied the Egyptian painters. They had figures for imitation from which they would not depart, and thoſe figures were monſtrous; the bodies of animals with the heads of men; the bodies of men with the heads of animals: or if the figure was more agreeable to nature in its parts, yet it was ſo deformed and imaginary, as to have nothing ſimilar to it as a whole in the creation of God.

The monuments of Egyptian painting with which we are beſt acquainted (ſays Winklemann) are the cheſts of mummies. Theſe works have reſiſted the injuries of time, and are ſtill ſubmitted to the examination of the curious. The white, made of white lead, is ſpread over the ground of the piece; the outlines of the figure are traced with black ſtrokes, and the colours are four in number; namely, blue, red, yellow, and green, laid on without any mixture or ſhading. The red and blue prevail moſt; and thoſe colours ſeem to have been prepared in the coarſeſt manner. The light is formed by leaving thoſe parts of the ground where it is neceſſary, covered with the white lead, as it is formed by the white paper in ſome of our drawings. This deſcription is ſufficient to convince us that the whole art of painting in Egypt conſiſted in colouring: but every perſon knows, that without tints and the mixture of colours painting can never arrive at great perfection.

Riſe, Progreſs, and Decline.

In Upper Egypt there ſeems to have exiſted a kind of coloſſian painting, which has never been examined except by travellers who were no great critics in the art. Winklemann had ſome reaſon to expreſs a deſire that thoſe remains of antiquity, with regard to the manner of working, the ſtyle, and the character, had been accurately explored. Walls of 24 feet in height, and pillars of 32 feet in circumference, are wholly covered with thoſe coloſſian figures. According to Norden they are coloured in the ſame manner with the mummies: the colours are applied to a ground prepared in manner of freſco; and they have retained their freſhneſs for many thouſand years. Winklemann adds, that all the efforts of human ſkill and induſtry could make as little impreſſion on them as the injuries of time. His enthuſiaſm for antiquity has perhaps led him into this extravagant exaggeration.

It appears that the great employment of the Egyptian painters was on earthen veſſels, on drinking cups, in ornamenting barges, and in covering with figures the cheſts of mummies. They painted alſo on cloth; but painting, as an induſtrious occupation, ſuppoſes a workman, not an artiſt: the decoration of temples, houſe painting, and that of the figures relative to religion, are to be conſidered only in this point of view. The workmen in Ruſſia who paint our Saviour holding the globe in one hand, and bleſſing the people with the other, are not members of the imperial academy of fine arts.

Pliny informs us that the Egyptian artiſts painted alſo the precious metals; that is to ſay, they varniſhed or enamelled them. It is doubtful what this art was, but moſt probably it conſiſted in covering gold or ſilver with a ſingle colour.

The Egyptians are ſuppoſed to have continued this coarſe ſtyle till the reign of the Ptolemies.

2 In Perſia.

The Perſians were ſo far from excelling in the arts, that the paintings of Egypt were highly eſteemed among them after they had conquered that country.

The carpets of Perſia were of great value in Greece, even in the time of Alexander the Great, and theſe were adorned with various figures; but this is no proof that they were well executed, any more than a demand for ſeveral of the Chineſe productions is at preſent a proof of the taſte of that people in the arts. It was the fabrication of the ſilk, and not the truth of the repreſentation, which made the Greeks admire the carpets of the Perſians.

Rise, Progress, and Decline.

The Persians, as well as the Arabians, had some knowledge of mosaic work. This is only valuable when it copies, in a manner that cannot be destroyed, the works of a great master; but if the Persians had no good pictures to copy into mosaic, it was of no consequence to be able to arrange, in a solid manner, pieces of flint one beside another.

There is only one Persian painter whose name has descended to posterity; and he is preserved, not because he was a painter, but because he accommodated the ancient doctrine of the two principles to the Christian religion. Besides, it is doubted whether Manes was a Persian or a Greek, and it is still less known whether he was a painter. He is praised in Asia for drawing straight lines without a ruler.

The modern Persians have made no kind of progress in the arts. The emperor Schah Abbas, wishing from caprice to be instructed in drawing, was obliged to have recourse to a Dutch painter who happened to be in his dominions.

3 In India and Thibet.

The modern Persians paint on cloth, and the artists in India are their rivals in this branch of industry; but their paintings are purely capricious. They represent plants and flowers which have no existence in nature; and their only merit consists in the brightness and the strength of their colours.

Besides this, the art in India, as it was in the most remote antiquity, is confined to monstrous figures connected with their religion, animals not to be found in the world, and idols with a multitude of arms and heads, which have neither exactness in their forms nor proportions. See POLYTHEISM.

The paintings of Thibet discover great patience in the artist, and are remarkable for the fineness of their strokes. Their painters might dispute with Apelles and Protogenes for extreme tenuity of pencil; but it is in this alone, without any regard to the art, in which their merit consists.

Some of the idols in Thibet are executed in a certain style of relievo; but those productions are not only imperfect, they are also so destitute of beauty as to forbid every hope of excellence in the art. The same thing may be observed with regard to many of the eastern nations; they seem to have that want of style which would for ever condemn them to mediocrity, even if they should happen to arrive at it.

4 In China.

An obscure Italian painter named *Giovanni Ghirardini*, who travelled into China, whose judgment is more to be depended on in an art which he practised than that of other travellers, declares that the Chinese have not the least idea of the fine arts; and this opinion is confirmed by every thing which we know of that people.

The Chinese seem not to have the smallest conception of perspective. Their landscapes have no plan, no variety in the appearance of the clouds, and no diminishing of the objects in proportion to their distance.

The great object of their painting seems to consist in making their figures as unlike nature as possible; it is a serious caricature of the human figure.

To make the art flourish, it is necessary that the artist be esteemed and rewarded. In China, there is no artist so poorly paid as the painter.

The ignorant admire the brightness and purity of their colours; but simple colours appear always bright and pure: The difficulty of the art consists in melting them into one another in such a manner that the mixture shall not be perceived. It must at the same time be confessed, that their natural colours are more brilliant than ours; but if there be any merit in this, it is to be ascribed to their climate, not to their ability.

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A Jesuit missionary, who in his youth had been a grinder of colours, was raised to the greatest eminence as a painter in the Imperial court of China, and Raphael himself was never so much respected. The Chinese battles sent from that country to Paris to be engraved, are the work of the Jesuits; and except they were done by the Chinese themselves, it is impossible to conceive that they could be worse executed.

The Chinese, like other eastern nations, have a few simple strokes which they repeat in all their variety of figures. In the figures on the earthen ware, they discover no knowledge of forms, no expression of the most conspicuous muscles, and no idea of proportion. And in all the paintings of China anatomy seems to bear no relation to the art. Some heads done by a Chinese painter have a sort of resemblance to nature, but they are in a low and vicious taste: The fulness of the drapery conceals the parts in such a manner that they do not seem to exist under it. Sculpture in China is in a state of no great perfection, but at the same time it is better executed than their paintings.

5 In Etruria.

The ancient inhabitants of Etruria, now called *Tuscany*, were the first who connected the arts with the study of nature. In some of their monuments which still remain, there is to be observed a first style, which shows the art in its infancy; and a second, which, like the works of the Florentine artists, shows more of greatness and exaggeration in the character than precision or beauty.

Pliny says that painting was carried to great perfection in Italy before the foundation of Rome; perhaps he means in comparison with the infancy of the art in Greece at that period; but it appears that even in his time the painters of Etruria were held in great reputation.

The only Etrurian paintings which remain, have been found in the tombs of the Tarquins. They consist of long painted frizes, and pilasters adorned with huge figures, which occupied the whole space from the base to the cornice. These paintings are executed on a ground of thick mortar, and many of them are in a state of high preservation.

6 In Campania.

Winklemann is of opinion that the Greek colonies established at Naples and Nola, had at a very early period cultivated the imitative arts, and taught them to the Campanians established in the middle of the country. This learned antiquarian considers as works purely Campanian, certain medals of Capua and Teanum, cities of Campania into which the Greek colonies never penetrated. The head of a young Hercules, and the head of a Jupiter, according to Winklemann, are executed in the finest manner. It is still a question, however, in the learned world, whether these medals owe their existence to Carthage or to Campania.

"But there has been discovered (adds Winklemann) a great number of Campanian vases covered with painting. The design of the greatest part of these vases (says he) is such, that the figures might occupy a distinguished

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guished place in a work of Raphael. Those vases, when we consider that this kind of work admits of no correction, and that the stroke which forms the outline must remain as it is originally traced, are wonderful proofs of the perfection of the art among the ancients." Winklemann had an opportunity of examining a very fine Campanian vase, on which was painted a burlesque representation of the loves of Jupiter and Alcmena. But as this must have been derived from some fragment of a Grecian comedy, the Count de Caylus is persuaded that the Campanian vases are of Greek origin.

7 Among the Greeks.

Although the history of Greek painting be more fully known than that of the same art among the barbarous nations, it is nevertheless involved in much obscurity. Pliny is almost the only author who has preserved the materials of its history; and he complains, that on this occasion the Greek writers have not discovered their usual precision. They place, says he, the first painter, of whom they speak, in the 90th Olympiad, 424 years before the Christian era. It is certain that painting in dry colours existed at the time of the siege of Troy, or at least when Homer wrote the account of it. The buckler of Achilles is a sufficient proof that the Greeks were then acquainted with the basso-relievo, a kind of sculpture which bears a near affinity to painting.

In the Iliad, Helen is represented as working at a tapestry, whereon she figured the numerous combats of which she was the cause. When Andromache was informed of her husband's death, she was occupied in representing on tapestry flowers of various colours. From these facts, it is certain that painting was not confined to simple strokes, nor even to the camaieu; and hence it is reasonable to conclude, that what is called *lineary painting* was practised long before the time of Homer. Polygnote of Thasos, who lived about 420 years before the Christian era, was the first painter of any eminence in Greece. Pliny informs us that he was the first who clothed his female figures, who varied the colours of the different parts of their dress, or who opened their mouths in such a manner as to show their teeth. Aristotle, who flourished in a subsequent period, allows this painter to have excelled in expression. But the art of painting may be still considered in its infancy in Greece, till about 400 years before the Christian era, when Zeuxis and Parrhasius flourished. In the contest between these eminent painters, Zeuxis declared himself to be overcome, because in a cluster of grapes which he painted he had deceived the birds; whereas Parrhasius in a curtain which he executed deceived his rival. The principal works of Zeuxis are his Penelope, in which, according to Pliny, he appears to have expressed the manners of that princess; a Jupiter surrounded by the gods; a Hercules strangling the serpents in the presence of Amphitrion and Alcmena; an Helen and a Marsyas bound. From this enumeration of these works, and from the fame which they have acquired, it is evident that the difficult parts of the art, and those which in the execution render it estimable, were now begun to be studied. By Apelles, Protogenes, and Euphranor, it was carried to the greatest height of perfection. Grace, and symmetry, and proportion, and illusion, were now added by the greatest masters to the noblest objects of nature.

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We have already seen, that before the foundation of Rome the arts were cultivated in Etruria. They were also early introduced into Latium; but whether that country employed its own artists or those of Etruria, remains altogether uncertain. One need not be astonished, that at a period when the arts were in their infancy in Greece, they were raising statues to their kings in Rome: but at that period all their artists were Etrurians or Latins; and when they conquered Italy, they made all the nations of it as barbarous as they were themselves.

8 Among the Romans.

In the year 259 from the building of the city of Rome, and 494 years before the Christian era, Appius Claudius consecrated a number of shields in the temple of Bellona, which contained in basso relievo the portraits of his family. This example was followed; and in process of time it was common among the Romans to place those images in private houses. The execution in basso relievo is a proof that they had an idea of painting, at least with one colour. As long as the Romans employed artists of other nations, they had little desire to cultivate the arts; but towards the year of Rome 450, and 303 years before Christ, one of the Fabii thought it no discredit to a noble family to employ himself in painting. He painted the temple of Safety; and his works remained till that temple was destroyed by fire, in the reign of Claudius. It is worthy of remark, that the same man was the first painter and the first historian in his country.

The example of Fabius, surnamed *Pictor* from his profession, did not excite his fellow citizens to imitation. A century and a half elapsed before the tragic poet Pacuvius, nephew of Ennius, painted the temple of Hercules in the *forum boarium*. The glory which he had acquired by his dramatic works shed some lustre on the art, which he condescended to exercise; but did not confer on it that respect which could recommend it to general practice. The paintings of Fabius were the works, or rather the recreations of his youth; those of Pacuvius, the amusements of his old age: but painting is a difficult art, which requires the whole attention, and which can never be prosecuted with success, except those who love it are solely devoted to the performance.

It appears that there were no eminent painters at Rome till the time of the emperors; but as the national spirit was changed, the profession of the fine arts acquired more respectability. The Romans, during the time of the republic, were animated with the spirit of liberty and the desire for conquest. When these two passions were weakened, the love of the arts obtained among them. As a proof of this it is sufficient to say, that Nero himself gloried in being an artist. A colossian picture of 120 feet was painted at Rome by the command of this emperor, which was afterward destroyed by lightning. The name of the painter is not recorded, and there are various opinions concerning the merit of the performance; but the thing chiefly worthy of observation is, that this is the only painting on cloth mentioned by ancient authors.

9 Of the modes of painting among the ancients.

The paintings of the ancient artists were either moveable or on the ceilings or compartments of buildings. According to Pliny, the most eminent were those who painted moveable pictures. The latter were either on fir-wood, larch, boxwood, or canvas, as in the colossian picture

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picture mentioned above, and ſometimes on marble. When they employed wood, they laid on in the firſt inſtance a white ground. Among the antiquities of Herculancum are four paintings on white marble.

Their immoveable paintings on walls were either in freſco or on the dry ſtucco in diſtemper. Indeed all the ancient paintings may be reduced to, *firſt*, freſco painting; *ſecondly*, water colour, or diſtemper painting on a dry ground; and, *thirdly*, encauſtic painting.

The ancient freſco-paintings appear to have been always on a white ſtucco-ground, the colours inlaid very deep, and the drawing much more bold and free than any ſimilar performance of modern art. The outlines of the ancient paintings on freſco were probably done at once, as appears from the depth of the inciſion and the boldneſs and freedom of the deſign, equal to the care and ſpirit of a pencilled outline.

In general the ancients painted on a dry ground even in their buildings, as appears from the Herculanean antiquities, moſt of which are executed in this manner. At Rome and Naples, the firſt (deepeſt) coat is of true puzzolana, of the ſame nature with the *tarras* now uſed in mortar, required to keep out wet, about one finger thick; the next of ground marble or alabaſter, and ſometimes of pure lime or ſtucco, in thickneſs about one third of the former. Upon this they appear to have laid a coat of black, and then another of red paint; on which laſt the ſubject itſelf was executed. Such ſeems to have been their method of painting on walls; but in their moveable pictures, and in the performance of their firſt artiſts, and where effect of ſhade and light were neceſſary, they doubtleſs uſed white.

The colours employed they ſeem to have mixed up with ſize, of which they preferred that made by boiling the ears and genitals of bulls. This appears to have made the colours ſo durable and adheſive, that the ancient paintings lately found bear waſhing with a ſoft cloth and water; and ſometimes even diluted aquafortis is employed to clean their paintings on freſco. Pliny ſays that glue diſſolved in vinegar and then dried, is not again ſoluble.

What the encauſtic painting of the ancients was, has been much diſputed. From the works of Vitruvius and Pliny, it appears evidently that it was of three kinds.

Firſt, Where a picture painted in the common way, was covered with a varniſh of wax melted, diluted with a little oil, and laid on warm with a bruſh.

Secondly, Where the colours themſelves were mixed up with melted wax, and the mixture uſed while warm. And,

Thirdly, Where a painting was executed on ivory by means of the *ceſtrum* or *viriculum*.

Some experiments on this laſt method by Mr Colebrook may be found in the Phil. Tranſ. vol. 51. and more particular directions in Muntz's Treatiſe on Encauſtic Painting.

It appears from ancient writings of the beſt authority, that in the earlieſt and pureſt times of this art, the painters uſed few colours, perhaps not more than four. "The paintings of the ancients (ſays Dionyſius Halicarnaſſeus) were ſimple and unvaried in their colouring, but correct in their drawing, and diſtinguiſhed by their elegance. Thoſe which ſucceeded, leſs correct in their drawing, were more finiſhed, more varied in their light and ſhades, truſting their effect to the multitude of their colours." But no certain concluſion can be drawn, that the more early among the great painters of the ancients, ſuch as Apollodorus, Zeuxis, Timanthes, &c. had only four different colours, merely becauſe they did not uſe them. On the contrary, it may be conjectured with ſome degree of probability, from their chaſteneſs in deſign, and from the complaints Pliny makes of the gaudy taſte of the Roman painters, that the Greeks in general were *deſignedly* chaſte in their colouring, and not ſo merely from neceſſity, at leaſt about the time of Zeuxis and Apelles; for the former could not have painted grapes ſo naturally as he is ſaid to have done with four colours only: and the rebuke given by the latter to one of his ſcholars who had painted an Helen very gaudily, is a confirmation of theſe obſervations. "Young man (ſays Apelles), not being able to make her beautiful, you have made her rich."

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10 The colours uſed by the ancients.

Of white colouring ſubſtances, the ancients had white lead variouſly prepared, a white from calcined egg-ſhells, and preparations from cretaceous and argillaceous earths. The moderns in addition have magiſtery of biſmuth, little uſed; and *ought* to have the calces of tin and zinc.

Of *blacks*, the ancients had preparations ſimilar to lamp, ivory, blue, and Franckfort black; alſo to Indian ink, and common writing ink; and they uſed, what we do not, the precipitate of the black dyers vats.

The ancients poſſeſſed a ſpecies of *vermilion* or fine cinnabar, a coarſer cinnabar, red lead, various earths burnt and unburnt, apparently ſimilar to our red ochre, Venetian red, Indian red, Spaniſh brown, burnt terra de Sienna, and ſcarlet ochre; they had alſo a ſubſtance alike in colour and in name to our dragon's blood.

The yellow pigments of the ancients were generically the ſame with our orpiments, king's-yellow, Naples yellow, &c. They did not poſſeſs turpeth-mineral, mineral yellow, or gamboge; nor do they appear to have known of gall-ſtone as a pigment.

Of blue paints they had preparations from the lapis cyanus and lapis armenius. Indigo they had, and perhaps bice and ſmalt; for they made blue glaſs, but whether from ſome ore of cobalt or of wolfram muſt be uncertain: they had not Pruſſian blue, verditer, or litmus, which we have. We do not uſe the blue precipitate of the dyers vats, or mountain blue, which they certainly employed.

Of green colours they had verdegriſe, terre verte, and malachite, or mountain green. The latter is not in uſe among us. Sap green, green verditer, and Scheele's green, appear to have been unknown to them: like us, they procured as many tints as they pleaſed from blue and yellow vegetables.

We have no original *purple* in uſe: that from gold by means of tin, though very good, when well prepared, is too dear perhaps, and unneceſſary. Their purple was a tinged earth. Their orange or ſandarac (red orpiment) we alſo poſſeſs. Hence there does not appear to have been any great want of pigments, or any very material difference between the colours they uſed and ſuch as we generally employ. Perhaps the full effect of colouring may be obtained without the uſe of exceeding brilliant pigments, depending chiefly on the proportion and oppoſition of tints.

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The ancients could not know any thing about the ſpirit varniſhes, diſtillation being a modern invention; but they were undoubtedly acquainted with the uſe of the better oil varniſhes, that is, with the uſe and effect of reſinous gums diſſolved in boiling inſpiſſated oils.

11 Whether the ancients painted in oil.

One of the beſt preſerved mummies in the Britiſh Muſeum has an aſtoniſhing brightneſs of colours on the outſide of the coffin. Thouſands of years have not impaired them; they are as freſh as if they had been laid on yeſterday.

The chalk ground, and the excellency of the colours, ſome of which imply a good deal of chemical and metallurgical knowledge, do not ſufficiently account for their ſplendour and freſhneſs: it muſt be owing to other circumſtances; either to the mixture of ſhining colours, or to a hard gloſſy ſkin, which viſibly covers them all over.

From an accurate examination of one of thoſe mummies belonging to the univerſity of Cambridge, it appeared, that the varniſh which covered the colours could not be diſſolved, or in the leaſt affected by common water; and that it equally reſiſted the diſſolving power of the ſtrongeſt ſpirits: hence it is reaſonable to conclude that the coffins of the mummies were not covered with ſize, white of eggs, ſimple gums, or any preparation of wax, but with a fine tranſparent oil varniſh. It was diſcovered at the ſame time, that the colours themſelves were not prepared or mixed with oil; for where the external gloſſy ſkin was damaged, broken, or rubbed off, even common water would waſh the colours away, and affect the chalk ground under them.

Pliny has deſcribed the general and particular effects of the varniſh of Apelles, under the name of *atramentum*, ſo indiſtinctly, that nobody can diſtinguiſh the thing or the mixture he is ſpeaking of. He has mentioned the ſhining gloſſy ſkin of the varniſh which excites the brightneſs of the colours, and preſerves them againſt duſt; he obſerved, that this ſkin was laid on ſo thin, that it could not be diſcerned at any diſtance: nor was he leſs accurate in reporting the particular effects of that mixture which Apelles made uſe of; it harmonized and lowered the tone of the brighteſt florid colours in an imperceptible manner, and the whole appeared as if it had been ſeen through iſinglaſs. The chemiſts and connoiſſeurs are fully of opinion, that no liquid ſubſtance or mixture of any kind is fit to produce theſe effects beſides the oil varniſhes: and if there are not, Apelles and the Greeks were certainly acquainted with thoſe varniſhes: a fact which might be ſtrongly urged in behalf of their knowledge of oil colours.

The black outlines of the figures on the moſt ancient Greek paintings yet extant, that is, on Etruſcan vaſes, are ſo ſharp, ſo thick, and drawn in ſo eaſy and maſterly a manner, that one cannot help looking upon them as having been drawn in oil colours. Had they been in diſtemper or water colours on the red clay ground on which they are applied, they would have been imbibed and ſoaked into it. Our china and enamel painters prepare and apply their colours with ſpike or other liquid oils; and the Greek maſters ſeem to have done the ſame, unleſs they ſhould appear to have burnt their vaſes before they painted them, or to have uſed a mixture of diſſolved wax or gum for giving a body to their colours, which might have anſwered the ſame ends as oils. And this is the more probable, as there is ſome reaſon to believe that theſe vaſes went through two different fires, that of baking them, and that of ſmelting or burning in their colours.

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The Greek and Roman paintings that have been preſerved or diſcovered at Rome and Herculaneum do not countenance the ſuppoſition of oil colours; at leaſt Turnbull and the academiſts at Naples, who have deſcribed the royal collection at Portici, Cochin, and many other authors who have ſeen and deſcribed them, do not hint any thing of that nature. On the other hand, Vitruvius, who has left us ſo many valuable notices of the ancient arts, acquaints us, that there was a kind of painting which abſolutely required a mixture of oil: And Pliny, to the ſame purpoſe, expreſsly ſays, "Sun and moon ſhine are inimical and obnoxious to red lead. The remedy is to apply the red wax when hot and melted *with ſome oil* on the well dried walls, which is to be done with bruſhes."

From theſe obſervations, the evidence which the ancients have given us in behalf of themſelves, and of their knowledge of oil painting, may be ſummed up in few words.

Their having been acquainted with the white chalk ground, which many modern maſters have uſed for oil painting on boards, proves no more than that the ancients might have done the ſame.

The oil varniſhes uſed by the Egyptians and by Apelles might have brought them to the diſcovery of oil painting; but as it appears both from mummies and from the works of Pliny, that their colours were not prepared and mixed with that varniſh, and as it is plain rather that this varniſh was externally laid over the finiſhed pictures; no other concluſion can be drawn, except that they were within ſight of the diſcovery, and that it is a matter of wonder that they ſhould not have laid hold of it.

The outlines of the old Greek or Etruſcan vaſes are merely fallacious appearances.

The old Greek and Roman paintings on walls and ſtones are either painted in diſtemper and freſco, or they have not been ſufficiently examined.

The oil uſed in the coarſer wax and wall paintings proves at moſt that experiments had been tried with oils: but we have no direct proofs of oil painting having been underſtood or uſed by the Egyptians, Greeks, or Romans; and that, however great their ſkill or ingenuity, they might very well have been within ſight and reach of the diſcovery, and nevertheleſs have miſſed it.

12 Riſe, progreſs, and decline, of modern painting.

The art of painting was revived in Europe about the end of the 13th or beginning of the 14th century. The human mind, however, plunged in profound ignorance, was deſtitute of every principle of ſound philoſophy which might enable it to determine on the objects of the arts; and of conſequence the painters contented themſelves with works adapted to the general taſte, without beauty and without proportion. In Italy, where the firſt attempts were made, they were employed in repreſenting the myſteries of the *paſſion*, and ſubjects of a ſimilar nature, on the walls of chapels and churches. Their labours were directed to a vaſt number of figures, rather than to the beauty and perfection of each; and the art in more modern times has always preſerved ſomewhat of this abſurd fault which it contracted at that early period. The artiſt in our times is not, like thoſe in Greece, at liberty to devote

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devote his talents only to men of knowledge and discernment; he is constrained to please those who are rich, and very frequently those who are ignorant. Instead of proposing to himself the perfection of the art as the great object of his pursuit, he must rest his success and character on the facility of his operation and the abundance of his works.

Painting did not long continue in the imperfect condition in which it was left by those who first cultivated it among the moderns. It was natural that their successors should endeavour to surpass them by joining some degree of theory to the barbarous practice they had adopted. The first thing which they discovered, or rather which they revived after the manner of the ancients, was perspective. This made the artists capable of expressing what is called *foreshortening*, and of giving more effect and more truth to their works.

Dominique Ghirlandaios, a Florentine, was the first who enriched the style of his composition by grouping his figures, and who gave depth to his pictures, by distinguishing, by exact gradations, the spaces which his figures occupied; but his successors have far surpassed him in boldness of composition.

Leonardo da Vinci, Michael Angelo, Giorgian, Titian, Bartholemew de St Marc, and Raphael, flourished about the end of the 14th century. Leonardo da Vinci was the inventor of a great many details in the art: Michael Angelo, by studying the ancients, and by his knowledge of anatomy, arrived at great elegance in drawing the outlines of his figures: Giorgian enriched the art in general, and gave greater brilliancy to his colours than his predecessors: Titian, by a careful imitation of nature, made great proficiency in the truth and perfection of his tones: Bartholemew de St Marc studied particularly the part of drapery, and discovered the claro obscuro, the best manner of giving drapery to his figures, and of making the naked to be felt even where they were covered: Raphael, endowed with a superior genius, began with studying carefully all his predecessors and all his contemporaries. He united in himself all the excellencies which they possessed; and formed a style more perfect and more universal than any painter who went before or who has succeeded him. But while he excelled in every part of the art, he was chiefly superior in those of invention and of composition. It is probable that the Greeks themselves would have been filled with admiration if they had beheld his chief pieces in the Vatican, where to the greatest abundance of paintings is joined so much perfection, and purity, and ease.

After painting had arrived at the greatest perfection among the Greeks by the exertions of Zeuxis and Parrhasius, Apelles found nothing to add to the art except grace; in the same manner among the moderns, after Raphael had appeared, grace was the only thing wanting to the art, and Corregio became the Apelles of Europe. Painting was by him carried to the highest degree among the moderns; the taste of the best critics and the eye of the vulgar were equally gratified.

After these great masters a considerable interval elapsed till the time of the Caracci. Those artists, born at Bologna, by studying the works of their predecessors with great care, and particularly those of Corregio, became the first and the most celebrated of their imitators. Hannibal possessed a very correct design, and united somewhat of the ancient style to that of Lewis his brother; but he neglected to inquire into the intricate principles and philosophy of the art. The pupils of the Caracci formed a school after their manner; but Guido, a painter of an easy and happy talent, formed a style altogether graceful, and rich, and easy. Guershen formed after Caravagio, or invented himself, a particular style of the claro-obscuro, composed of strong shades and vivid oppositions.

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Peter de Cortone succeeded those great imitators of their predecessors and of nature; who finding it difficult to succeed in that kind of painting, and having besides great natural abilities, applied himself chiefly to composition or arrangement, and to what the artists call taste. He distinguished invention from composition; appeared not to have attended to the former, but chiefly to those parts which are most prominent in the picture, and to the contrasting of groups. It was then that the practice was introduced of loading pictures with a great number of figures, without examining whether or not they agreed to the subject of the history. The ancient Greeks employed a very small number of figures in their works, in order to make the perfection of those which they admitted more evident. The disciples or imitators of Cortona, on the other hand, have sought to conceal their imperfections by multiplying their figures. This school of Cortona is divided into many branches, and has changed the character of the art. The multiplication of figures, without a judicious and proper choice, carried back the art of painting to that point where the first restorers of it among the moderns had left it; while at the same time the disciples of Cortona were enabled to give to this first condition of the art a greater degree of perfection than the first artists.

About the middle of the 17th century flourished at Rome Carlo Maratti, who, aiming at the greatest perfection, carefully studied the works of the first painters, and particularly those of the school of the Caracci. Although he had already studied nature, he discovered by the works of these artists that it is not always proper to imitate her with a scrupulous exactness. This principle, which he extended to every part of the art, gave to his school a certain style of carefulness, which however is considerably degenerated.

France has also produced great masters, particularly in the part of composition; in which Poussin, after Raphael, is the best imitator of the style of the ancient Greeks. Charles le Brun and many others distinguished themselves for great fertility of genius: and as long as the French school departed not from the principles of the Italian school, it produced masters of great merit in the different branches of the art.

Mengs, from whom this account is taken, is not deceived when he declares the art of painting to have degenerated in France after Le Brun; but he seems to be mistaken in giving the imitation of the works of Rubens found at Paris as the cause of this decay. It appears from this opinion, that the recent French school was not well known to him. The French, indeed, if we may believe their own authors, were never much occupied in the imitation of Rubens; and they have for a long time despised him. But the perfection of the dramatic art in France, the dress of their actors, the magnificence and manners of the court, have contributed very much to the decay of painting.

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painting. Instead of forming their taste on the beautiful simplicity of nature, their painters studied the gestures and the attitudes of comedians, the fopperies of women of fashion, the affected airs of courtiers, the pageantry of Versailles, and the magnificence of the opera. Mengs says, "that the French have formed a national style, of which ingenuity and what they call *esprit* are the discriminating qualities; that they have ceased to introduce Greek, Egyptian, Roman, or barbarian personages into their paintings; and that after the example of Poussin, they content themselves with figures altogether French, as if it were their intention to hand down to posterity that such a nation once existed."

Since, according to the confession of Mengs, their figures are altogether French, there is no reason to believe that the French painters have imitated Rubens, whose works are marked much more strongly than those of his master Æneus with the Flemish character. The truth is, that their painters, like Cortona and Maratti, have crowded their pictures with a great number of figures; have grouped them in a manner most calculated to strike the senses; have been more intent on agreeable artifices than expression and beauty; and, finally, that they have borrowed the manners of the court and theatre.

The first masters of the great schools of painting, with the ancients and nature for their guides, and their genius for their support, carried every part of the art to the greatest height of perfection. Those who followed them, and who had the example of their predecessors in addition to the first sources of truth and beauty, did by no means arrive at the same excellence. The Caraccis in their school, Paul Veronese, and all the painters of his time, Vandyke, and all those who exercised the art in Italy, in Flanders, and in France, supported it with great brilliancy. But soon after the number of artists was multiplied; and slavishly copying men of inferior talents, they produced works of an inferior nature. Some wanting to be colourists, their pieces were exaggerated; others affecting simplicity, became cold and insipid. At this period of the art, men of real abilities, and covetous of fame, who wished to rise superior to the mediocrity of the times, seem not to have taken the road of truth and nature. They affected a style of pompous preparation, and annexed a kind of merit to the expert management of the pencil. The affected forms of Cortona and of his pupils, the fantastical attitudes and the poignant effects of Piazetta, and in short the ingenious contrivances of the last masters of the French school, are decided proofs of this increasing bad taste.

It appears, that for some time past greater pains have been taken to form men for the art than to encourage those who possess the talent. In consequence of this ruinous practice, schools for drawing, very different from those formed by able painters, have been exceedingly multiplied; and these give the elements according to an uniform system, by which the mind is laid under a regular restraint at the very threshold of the profession. This evil is productive of two inconveniences; it gives middling painters, and it multiplies them to that degree, as to hasten the downfall and bring into contempt the art itself.

The particular reputation of the Italian painters furnishes another reason for the decline of the art. The first painters of that country were few in number; they were honoured, and they deserved to be honoured. Their distinguished reputation has conferred a value on the general paintings of their countrymen. The desire of possessing taste, or of being thought to possess it, had led the rich and the ignorant of all nations to give a preference to the Italian market. Necessity, in this case, would multiply the painters; and their abilities must bear a pretty exact proportion to the discrimination of those who give the price.

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The decline of painting has also arisen from the despotism which for some time reigned in the academic societies. In fact, these have often been ruled by men who would force every exertion of genius into their peculiar tract of operation. If they required such or such merit of execution, the first principles of the art were neglected for that peculiar excellency. In this manner the schools were absolute in behalf of design as long as statuary was held in chief estimation. The artist, whose abilities and inclination led him to colouring, was obliged to abandon a pursuit which could be of no service to him, and devote himself to that for which he was not qualified by nature. On the other hand, if the instructions of the schools be confined to colouring, a mind disposed to the choice and exactness of forms will find no encouragement, and be for ever lost to the art. In this manner the ignorance of those who wish to be connoisseurs, and the narrow views of those who pretend to direct the general taste, have equally contributed to the decline of the arts.

Sect. II. *Of the Schools.*

A School, in the fine arts, denominates a class of artists who have learned their art from a certain master, either by receiving his instructions, or by studying his works; and who of consequence discover more or less of his manner, from the desire of imitation, or from the habit of adopting his principles.

All the painters which Europe has produced since the renovation of the arts are classed under the following schools: the school of Florence, the school of Rome, the school of Venice, the Lombard school, the French school, the German school, the Flemish school, the Dutch school, and the English school.

13 School of Florence.

This school is remarkable for greatness; for attitudes seemingly in motion; for a certain dark severity; for an expression of strength, by which grace perhaps is excluded; and for a character of design approaching to the gigantic. The productions of this school may be considered as overcharged; but it cannot be denied that they possess an ideal majesty, which elevates human nature above mortality. The Tuscan artists, satisfied with commanding the admiration, seem to have considered the art of pleasing as beneath their notice.

This school has an indisputable title to the veneration of all the lovers of the arts, as the first in Italy which cultivated them.

Painting, which had languished from the destruction of the Roman empire, was revived by Cimabue, born of a noble family in Florence in the year 1240. This painter translated the poor remains of the art from a Greek artist or two into his own country. His works, as may easily be imagined, were in a very ordinary style, but they received the applause and admiration of his fellow-citizens; and if Cimabue had not found admirers, Florence in all

Schools. probability would not have been honoured with Michael Angelo. The number of painters became ſoon ſo conſiderable in Florence, that in the year 1350 they eſtabliſhed a ſociety under the protection of St Luke.

Maſſolino, towards the beginning of the 15th century, gave more grandeur to his figures, adjuſted their dreſs better, and ſhed over them a kind of life and expreſſion. He was ſurpaſſed by Maſſacio his pupil; who firſt gave force, animation, and relievo to his works.

Andrew Caſtagna was the firſt Florentine who painted in oil. But Leonardo da Vinci and Michael Angelo contemporary painters, were the glory of the ſchool of Florence. Michael Angelo was ſuperior to Leonardo in grandeur, in boldneſs of conception, and in knowledge of deſign; but Leonardo was ſuperior to him in all the amiable parts of the art. Leonardo, poſſeſſed of a fine imagination, and full of ſenſibility, devoted himſelf in painting to expreſs the affections of the ſoul: and if, in this ſublime branch of the art, he was afterwards ſurpaſſed by Raphael, he had at leaſt the glory not only of exceeding all the painters who went before him, but of purſuing a path which none of them had attempted. His deſign was pure and neat, and not wholly deſtitute of greatneſs. He never went beyond nature, and he made a good choice of objects for imitation.

Michael Angelo, leſs formed to experience ſweet affections than vehement paſſions, ſought in nature what the ſtrength of man might accompliſh, not that which conſtitutes beauty. He delighted in being great and terrible, more than in graceful and pleaſant attitudes. Well acquainted with anatomy, he knew more exactly than any other artiſt in what manner to expreſs the joining of the bones of the body, and the office and inſertion of the muſcles: but too eager to diſplay his knowledge of anatomy, he ſeems to have forgotten that the muſcles are ſoftened by the ſkin which covers them; and that they are leſs viſible in children, in women, and in young men, than in confirmed and vigorous manhood. "In his figures (ſays Mengs) the articulations of the muſcles are ſo eaſy and free, that they appear to be made for the attitude in which he repreſents them. The fleſhy parts are too much rounded, and the muſcles are in general too large, and of too equal ſtrength. You never perceive in his figures a muſcle at reſt; and although he knew admirably well how to place them, their action is very frequently inconſiſtent with their ſituation."

"He did not poſſeſs (ſays Sir Joſhua Reynolds) ſo many delightful parts of the art as Raphael; but thoſe which he had acquired were of a more ſublime nature. He ſaw in painting little more than what might be attained in ſculpture; and he confined it to exactneſs of form and the expreſſion of paſſions."

He informs us, in one of his letters, that he modelled in earth or wax all the figures which he intended to paint. This method was familiar to the great painters of his time, and ought never to be abandoned. It appears, that in repreſenting them in this manner in relievo, the painter can imitate them much more exactly than when they are drawn with a crayon or pencil on a plain ſurface.

"Michael Angelo (continues Sir Joſhua Reynolds) never attempted the leſſer elegancies and graces in the art. Vaſari ſays, he never painted but one picture in oil; and reſolved never to paint another, ſaying it was an employment only fit for women and children.

"If any man had a right to look down upon the lower accompliſhments as beneath his attention, it was certainly Michael Angelo; nor can it be thought ſtrange, that ſuch a mind ſhould have ſlighted, or have been withheld from paying due attention to all thoſe graces and embelliſhments of art which have diffuſed ſuch luſtre over the works of other painters." Schools.

14 Roman ſchool.

Ancient Rome, rich with the works brought from Greece, or finiſhed in its own boſom by Grecian artiſts, handed down in its ruins the remains of that glory to which it had been elevated. It was by the ſtudy of theſe remains that the modern artiſts were formed: they derived from them the knowledge of deſign, the beauty of exquiſite forms, greatneſs of ſtyle, and juſtneſs of expreſſion, carried to that length only which did not affect the beauty of the figure. From them alſo they derived the principles of the art of drapery; and they followed theſe principles even while they made the drapery of modern paintings more large and flowing than what was practiſed by the ancient ſculptors. The Roman ſchool was altogether devoted to the principal parts of the art, to thoſe which require genius and vaſt conceptions; and was no farther occupied with colours than what was neceſſary to eſtabliſh a difference between painting and ſculpture, or rather between painting varied with colours and in claro-obſcuro.

Raphael Sanzio, born at Urbino in 1483, and ſcholar to Pietro Perugeno, was the undoubted founder of this ſchool. His firſt manner was that of Perugeno his maſter; but he travelled twice to Florence to ſtudy the great artiſts who flouriſhed in that city.

It was fortunate for Raphael, ſays Mengs, that he was born, in what he terms the infancy of the art, and that he formed himſelf by copying nature before he had acceſs to ſee the works of any great maſter. He began by ſtudying, with great exactneſs, the ſimple truth in his figures. He was then ignorant that any choice was neceſſary; but he ſaw the works of Leonardo da Vinci, of Maſſacio, and of Michael Angelo, which gave his genius a new direction. After this he perceived that there was ſomething more in the art of painting than a ſimple imitation of truth. But the works of thoſe maſters were not ſufficiently perfect to point out the beſt choice to make; and he continued in uncertainty till he ſaw at Rome the works of the ancients. Then he perceived that he had found the true models which he wanted; and in imitating them he had only to follow the natural impulſe of his genius.

Habituated by his firſt manner to imitate nature with preciſion, it was not difficult to carry the ſame exactneſs into the imitation of the ancients; and it was a great advantage to him that he flouriſhed in an age wherein the artiſts were not arrived at facility of execution at the expence of rigorous exactneſs. He never loſt ſight of nature; but he was inſtructed by the ancients in what manner ſhe ſhould be ſtudied. He perceived, that the Greeks had not entered into minute details, that they had ſelected what was great or beautiful, and that one of the chief cauſes of the beauty of their works was the regularity of their proportions; he began, therefore, by carefully ſtudying this part of the art. He ſaw alſo that the joinings of the bones, and the free play of their articulations, are the cauſes of all graceful movement: he there-

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Schools. fore, after the example of the ancients, gave the greateſt attention to this part, and was led by theſe obſervations not to be contented with the ſimple imitation of nature.

His deſign is excellent, but neither ſo perfect nor ſo finiſhed as that of the Greeks. He excelled in repreſenting the character of philoſophers, apoſtles, and other figures of that kind; but he did not equal the Greeks in ideal figures, which ought to carry the impreſſion of divinity. His taſte for deſign was more Roman than Greek, becauſe he formed it chiefly on the baſſo-relievos which he found at Rome. On this account he had the habit of marking ſtrongly the bones and the articulations, and labouring the fleſhy parts leſs; but as theſe baſſo-relievos are very exact with regard to the reciprocal proportions of every member, he excelled in this part, while at the ſame time he did not give to his figures all the elegance of the Greek artiſts, nor the flexibility of articulation which is admired in the Laocoon, in the Apollo of Belvidere, and in the Gladiator.

The manners and ſpirit of his age, and the ſubjects which he moſt commonly treated, prevented him from reaching the ideal of the ancients. Having ſeldom occaſion to repreſent figures altogether ideal, he devoted himſelf to purity of expreſſion. He knew that the expreſſion of the paſſions of the ſoul is abſolutely neceſſary in an art which repreſents the actions of men, ſince from thoſe affections the actions may be ſaid truly to originate. To make figures act, and yet neglect the interior ſprings of action, is nothing more than a repreſentation of automata. The attitudes and action are evident; but they appear not to act of themſelves, becauſe they are void of thoſe principles from which alone men are ſuppoſed to act. An artiſt who neglects expreſſion, gives no juſt repreſentation of character, even though he ſhould take nature for his model.

Raphael's firſt care, when he wanted to compoſe a piece, was to weigh the expreſſion; that is to ſay, to eſtabliſh, according to the nature of the ſubject, the paſſions which were to animate the characters. All the figures, all the acceſſories, all the parts of the compoſition, were moulded to the general expreſſion.

As he had not found examples in the ancient ſtatues of the claro-obſcuro, he was comparatively weak in this part; and if there was any thing remarkable in his diſtribution of light and ſhade, he owed it to the works of the Florentine painters. It cannot be ſaid, however, even with regard to the claro-obſcuro, that he imitated nature without taſte. He delighted in what are called *maſſes* of light; and diſpoſed the great lights in the moſt conſpicuous places of his figures, whether naked or in drapery. If this method did not produce effects highly illuſive, it gives his works that diſtinctneſs which makes his figures conſpicuous at a diſtance; and this muſt be allowed to be an eſſential part of the art of painting. He did not proceed beyond this; and content with that kind of claro-obſcuro which comprehends imitation, he never attempted that which is ideal.

The compoſition and the *enſemble* of his figures were the chief excellencies of Raphael. His philoſophical mind could not be affected with objects which had not expreſſion. He had too high an idea of painting to conſider it as a mute art; he made it ſpeak to the heart and ſoul: and he could only do this in ſubjects which required expreſſion. If Raphael did not reach the Greek excellence, if he did not poſſeſs the art of embelliſhing nature in the ſame high degree, he ſaw at leaſt, and imitated her in whatever was expreſſive and beautiful. "The Greeks ſailed with majeſty (ſays Mengs) between earth and heaven: Raphael walked with propriety on the earth."

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"Compoſition is in general (ſays the ſame author) of two kinds: Raphael's is the expreſſive kind; the other is the theatrical or pictureſque, which conſiſts of an agreeable diſpoſition of the figures. Lanfranc was the inventor of this laſt, and after him Pietro de Cortona. I give the preference to Raphael; becauſe reaſon preſides over all his works, or at leaſt the greateſt part of them. He never allowed himſelf in common ideas, and was never allured to give any thing in his acceſſory figures which might turn the attention from the principal object of the piece."

A hiſtory of the ſchools is nothing more than a hiſtory of the painters who founded them. In thoſe two which we have already given, Michael Angelo and Raphael come readily forward to claim our attention; and therefore we cannot do better than conclude the account by the maſterly contraſt of theſe eminent painters given by Sir Joſhua Reynolds. "If we put thoſe great artiſts (ſays he) in a light of compariſon with each other, Raphael had more taſte and fancy, Michael Angelo more genius and imagination. The one excelled in beauty, the other in energy. Michael Angelo has more of the poetical in operation; his ideas are vaſt and ſublime; his people are a ſuperior order of beings; there is nothing about them, nothing in the air of their actions, or their attitudes, or the ſtyle and caſt of their limbs or features, that puts one in mind of their belonging to our ſpecies. Raphael's imagination is not ſo elevated; his figures are not ſo much diſjointed from our own diminutive race of beings, though his ideas are chaſte, noble, and of great conformity to their ſubjects. Michael Angelo's works have a ſtrong, peculiar, and marked character; they ſeem to proceed from his own mind entirely; and that mind ſo rich and abundant, that he never needed, or ſeemed to diſdain, to look abroad for foreign help. Raphael's materials are generally borrowed, though the noble ſtructure is his own. The excellency of this extraordinary man lay in the propriety, beauty, and majeſty of his characters; his judicious contrivance of compoſition, correctneſs of drawing, purity of taſte, and the ſkilful accommodation of other men's conceptions to his own purpoſe."

15 Venetian ſchool.

This ſchool is the child of nature. The Venetian painters not having under their eyes like the Roman the remains of antiquity, were deſtitute of the means of forming a juſt idea of the beauty of forms and of expreſſion. They copied without choice the forms of nature; but they were chiefly delighted with the beauties which preſented themſelves in the mixture and the variety of natural colours. Their attention not being detached from this part by any thing of greater importance, colouring was their chief object, and they ſucceeded in it. They did not reſt contented with characterizing the objects by compariſon, in making the colour proper for one of more value by the

Schools. colour more proper for another; but they endeavoured ſtill father, by the agreement and oppoſition of the coloured objects, and by the contraſt of light and ſhade, to produce a vigorous effect, to demand and fix the attention. Dominic, who was ſaid to have periſhed at Florence by the jealouſy of André Caſtagna, and who was the ſecond Italian artiſt who painted in oil, had educated, before he quitted Venice, his native country, Jacques Bellin, who was remarkable for nothing but the picturesque education which he gave to Gentel and John his two ſons.

Gentel, who was the eldeſt, painted chiefly in water colours. John contributed much to the progreſs of his art in painting conſtantly in oil, and after nature. Although he always retained great ſtiffneſs in his manner, he had leſs than his father or brother. Great neatneſs of colouring, and an approach to harmony, are evident in his works. His taſte in deſign is Gothic, the air of his heads is ſufficiently noble, his attitudes are without judgement, and his figures without expreſſion. He had for ſcholars Giorgion and Titian, who deſerve to be conſidered as the founders of the Venetian ſchool.

Giorgion diſtinguiſhed himſelf by a deſign of a better taſte than that of his maſter; but he chiefly ſurpaſſed him in colouring. He died in his 32d year; and excited the emulation of Titian, who ſoon greatly excelled him.

Tiziano Vecelli, known beſt by the name of *Titian*, was inſtructed to copy nature in the moſt ſervile manner in the ſchool of John Bellin; but when he had ſeen the works of Giorgion, he began to ſtudy the ideal in colouring.

The truth of hiſtory is not to be expected in his hiſtorical paintings, or in thoſe of the artiſts of the ſame ſchool. He ſeems to have paid little attention to the conſiſtence of ſcene, to the coſtume, to expreſſion adapted to the ſubject, or, finally, to the accommodation of parts which characteriſe the works of thoſe who have ſtudied the ancients. He was in ſhort a great painter and nothing more.

But although he deſerves not to be placed among the moſt diſtinguiſhed artiſts in point of judgement, yet he is by no means deſtitute of great and noble conceptions. There is often to be found among his male figures a conſiderable degree of grandeur: but if he has ſometimes, like Michael Angelo, overcharged his deſign, it was more diſcovered in the ſwelling of the ſoft and fleſhy parts than in vigour and muſcular ſtrength.

Almoſt entirely devoted to ſimple imitation, he had ſcarcely greater choice in the claro-obſcuro than in deſign. He cannot be juſtly reproached at the ſame time for weakneſs in this particular; becauſe in endeavouring to imitate the colours of nature, he was obliged to obſerve the degrees of light. And in proportion as he ſucceeded in the imitation of natural colours he muſt be leſs defective in the claro obſcuro; but it is not in the knowledge of this part of the art that we are to ſeek for the beauties of his works. Theſe are to be found in the happy diſpoſitions of colours both proper and local, and he carries this to the higheſt point of perfection.

The artiſts in the Florentine and Roman ſchools painted moſt commonly in water colours or in freſco; and in the exerciſe of their profeſſion, inſtead of nature, they finiſhed their works from their firſt ſketches. Titian painted in oil, and finiſhed from the objects in nature; and this practice, joined to his exquiſite talents, gave the greateſt truth to his colours. His being a portrait painter was alſo of advantage to him as a colouriſt. In this department he was accuſtomed to the colours of nature in carnations and draperies. He was a landſcape-painter, and here alſo he took the colours from nature. Schools.

"As Titian perceived (ſays Mengs) that the objects which are beautiful in nature have often a bad effect in painting, he found it neceſſary to make a choice in the objects of imitation; and he obſerved, that theſe were objects of which the local colours were extremely beautiful, which nevertheleſs were in a great meaſure deſtroyed by the reflection of light, by the poroſity of the body, and by different luminous tints, &c. He perceived alſo, that in every object there was an infinite number of half tints, which conducted to the knowledge of harmony. In ſhort, he obſerved in the objects of nature, a particular agreement of tranſparency, of opacity, of rudeneſs, and of poliſh, and that all objects differed in the degrees of their tints and their ſhades. It was in this diverſity he ſought the perfection of his art; and in the execution he moderated the effect of natural colours. For example, in a carnation which had many demi-tints, he confined himſelf to one; and he employed even leſs than a demi-tint, where there were few in the natural object. By this means he obtained a colouring exquiſitely fine; and in this part he was a great maſter, and deſerves to be carefully ſtudied."

Titian has in general little expreſſion in his pictures, and he ſometimes introduces figures which augment the coldneſs of the piece; for if it be true that the heads, even in hiſtorical painting, ought to be ſtudied after nature, it is true alſo that an individual nature ought not to be preſented, but one general and ideal. It is neceſſary that they ſhould be men, while they reſemble not men we are accuſtomed to ſee. The painter fails in the effect which he ought to produce, if, when he repreſents Achilles, Hector, and Cæſar, his perſonages are familiar to our obſervation.

The colours of his paintings are ſo mingled together, as to give no idea of the colours on his pallet; which diſtinguiſhes him from Rubens, who placed his colours one at the ſide of another. It is impoſſible to ſay, on the narroweſt inſpection, with what colours he produced his tints. This practice, which enabled him to imitate ſo exactly the colours of nature, gives a marked diſtinction to his manner of painting. In the examination of his works, the critics loſe an ordinary ſource of pleaſure, which ariſes from marking the freedom of hand; but they may conſole themſelves with the natural and exquiſite touches of this artiſt.

He is of hiſtorical painters one of thoſe who have ſucceeded in landſcape. His ſituations are well choſen; his trees are varied in their forms, and their foliage well conceived. He had a cuſtom of repreſenting ſome remarkable appearance in his landſcapes to render them more ſtriking.

The diſtinguiſhing characteriſtics of this ſchool are, grace, 16 Lombard ſchool.

Schools. grace, an agreeable taſte for deſign, without great correction, a mellowneſs of pencil, and a beautiful mixture of colours.

Antonio Allegri, called *Corregio*, was the father and greateſt ornament of this ſchool. He began like the painters of his time to imitate nature alone; but, as he was chiefly delighted with the graceful, he was careful to purify his deſign from all ſhort turnings and unneceſſary angles. He perceived that largeneſs contributed to grace; and therefore he not only rejected all ſmall figures, but enlarged as much as poſſible the outlines, avoided acute angles and ſtraight lines, and by theſe means gave an eaſy grandeur to his deſign. He made his figures elegant and large; he varied the outlines by frequent undulations; but he was not always pure and correct.

Corregio painted in oil, a kind of painting ſuſceptible of the greateſt delicacy and ſweetneſs; and as his character led him to cultivate the agreeable, he gave a pleaſing captivating tone to all his pictures. He ſought tranſparent colours to repreſent ſhades conformable to nature, and adopted a manner of glazing which actually rendered his ſhadows more obſcure. Obſcurity in painting cannot be fully obtained without tranſparent colours; for theſe abſorb the rays of light, and of conſequence give leſs reflection. He laid his colours very thick on the brighteſt parts of his pictures, to make them capable of receiving, by a proper touch, the greateſt degree of light. He perceived, that the reflections of light correſpond with the colour of the body from which they are reflected; and on theſe principles he founded his theory of colours with reſpect to light and ſhade and reflection. But it is chiefly in the colour of his ſhades that he deſerves to be imitated; for his lights are too clear, and ſomewhat heavy; and his fleſhy parts are not ſufficiently tranſparent.

Harmony and grace are connected together; and on this account Corregio excelled alſo in harmony. As the delicacy of his taſte ſuffered him not to employ ſtrong oppoſitions, he naturally became a great maſter in this part, which chiefly conſiſts of eaſy gradations from one extreme to another. He was harmonious in his deſign, by making the lines which formed the angles of the contour arched and undulated. But in the lights and ſhades, he placed always between the two extremes a ſpace which ſerved to unite them, and to form a paſſage from the one to the other. The delicacy of his organs made him perceive, better than any other artiſt, what relief was neceſſary to the eye after a violent exertion; and he was therefore careful to follow a bold and prevailing colour with a demi-tint, and to conduct the eye of the ſpectator, by an inviſible gradation, to its ordinary ſtate of tenſion. In the ſame manner (ſays Mengs) does agreeable and melting muſic pull one ſo gently out of ſleep, that the awaking reſembles enchantment more than the diſturbing of repoſe. A delicate taſte in colours, a perfect knowledge of the claro obſcuro, the art of uniting light to light, and ſhade to ſhade, together with that of detaching the objects from the ground, inimitable, grave, and perfect harmony, were the qualities which diſtinguiſhed Corregio from all the painters, and placed him near the head of his profeſſion.

The Caracci, Lewis, Auguſtin, and Hannibal, formed what is called the *ſecond Lombard ſchool*, which is Schools. frequently diſtinguiſhed by the name of the *ſchool of Bologna*.

Lewis was the maſter of the other two; he had ſtudied the works of Titian and Paul Veroneſe at Venice, thoſe of André del Sarte at Florence, thoſe of Corregio at Parma, and thoſe of Jules Romaen at Mantua; but he chiefly endeavoured to imitate the manner of Corregio. Hannibal fluctuated between Corregio and Titian. Auguſtin their rival in painting had his mind cultivated by learning, and devoted part of his time to poetry and muſic, to dancing and to other manly exerciſes. Theſe three painters often employed their talents on the ſame piece; and it was admirable that their united labours ſeemed to be animated with the ſame ſpirit.

They eſtabliſhed an academy at Bologna, which their zeal for the advancement of their art made them call *l'Academia degli Deſideroſi*; but it was afterward called the *Academy of the Caracci*, becauſe the reputation which theſe artiſts acquired, permitted not a more illuſtrious name to be given to an eſtabliſhment of which they were the founders. In this ſchool were taught the art of conſtructing models, perſpective, and anatomy; leſſons were given on the beautiful proportions of nature, on the beſt manner of uſing colours, and on the principles of light and ſhade. They held frequent conferences, in which not only artiſts, but men of general knowledge, were permitted to elucidate points relative to the art of painting: but they were ſeparated upon Hannibal's going to Rome to adorn the gallery of the cardinal Farneſe.

The works of the Caracci are often, from the reſemblance of their manner, confounded together; eſpecially thoſe which were finiſhed previous to the reſidence of Hannibal at Rome. Meanwhile each of them has a decided character diſtinct from the other two. Lewis had leſs fire, but more of gracefulneſs and grandeur; Auguſtin had more ſpirit in his conception, and more pleaſantneſs in his execution: Hannibal is characterized by boldneſs, by a deſign more profound, by an expreſſion more lucky, and by an execution more ſolid.

Sir Joſhua Reynolds, who ſaw the works of Lewis at Bologna, holds him out in his diſcourſes as the beſt model for what is called *ſtyle* in painting; which is the faculty of diſpoſing colours in ſuch a manner as to expreſs our ſentiments and ideas. "Lodovico Caracci," ſays he, "(I mean in his beſt works) appears to me to approach the neareſt to perfection. His unaffected breadth of light and ſhadow, the ſimplicity of colouring, which, holding its proper rank, does not draw aſide the leaſt part of the attention from the ſubject, and the ſolemn effect of that twilight which ſeems diffuſed over his pictures, appears to me to correſpond with grave and dignified ſubjects better than the more artificial brilliancy of ſunſhine which enlightens the pictures of Titian."

Hannibal is eſteemed by the beſt judges as a model for beauty and deſign. Thoſe who blame him for becoming leſs a colouriſt at Rome than he was at Bologna, ought to recollect that it is his performances at Rome which have chiefly ſecured his reputation. Severe critics have maintained that his deſign is too little varied in his figures; that he excels only in male beauty; that in imitating ancient ſtatues, he excites ſome reſemblance,

but

Schools. but without arriving at the ſublimity of ideas and of ſtyle which characterize the ancients; or, in other words, that he hath ſucceſsfully imitated the exterior of their manner, but that he was incapable of reaching the interior and profound reaſonings which determined thoſe admirable artiſts.

The ſucceſs of Hannibal, and the reputation which he acquired, have been pernicious to the art. His ſucceſſors, deluded by theſe conſiderations, have made him the object of their imitation, without aſcending to the ſources from which he derived his knowledge, and which he never could equal. The reſult has been, that, inſtead of becoming equal to Hannibal, they have often copied his imperfections.

17 The French ſchool. This ſchool has been ſo different under different maſters, that it is difficult to characterize it. Some of its artiſts have been formed on the Florentine and Lombard manner, others on the Roman, others on the Venetian, and a few of them have diſtinguiſhed themſelves by a manner which may be called their own. In ſpeaking in general terms of this ſchool, it appears to have no peculiar character; and it can only be diſtinguiſhed by its aptitude to imitate eaſily any impreſſion; and it may be added, ſpeaking ſtill in general terms, that it unites, in a moderate degree, the different parts of the art, without excelling in any one of them.

It is equally difficult to determine the progreſs of painting in France. Miniature painting, and painting on glaſs, were early cultivated in that country; and in theſe two kinds, the Italians had often recourſe to the French artiſts. When Francis I. encouraged Roſſo a Florentine, and Primatice a Bolognian, the painters in France were not remarkable for any ſuperior talent; but they were capable of working under theſe foreign artiſts.

Couſin, a painter on glaſs, and portrait-painter, was the firſt who eſtabliſhed any kind of reputation in France. He was correct, but poſſeſſed very little elegance of deſign.

Painting, for ſome time encouraged by Francis I. fell into a ſtate of languor, from which it was not recovered till the reign of Louis XIII. Jacques Blanchard, formed at the Venetian ſchool, and called *the French Titian*, flouriſhed about this period. But as he died young, and without educating any pupils to perpetuate his manner, he muſt be regarded as a ſingle good artiſt, and not as a founder of the French ſchool.

In the ſame manner Pouſſin, one of the greateſt French painters, and who is called *the Raphael of France*, educated no pupils, nor formed any ſchool. His ſtyle and character of painting are deſcribed by Sir Joſhua Reynolds as ſimple, careful, pure, and correct. No works of any modern (adds the ſame author) have ſo much of the air of antique painting as thoſe of Pouſſin. His beſt performances have a remarkable dryneſs of manner, which, though by no means to be recommended for imitation, yet ſeems perfectly correſpondent to that ancient ſimplicity which diſtinguiſhes his ſtyle.

In the latter part of his life he changed from this manner to one much ſofter and richer; where there is a greater union between the figures and the ground. His favourite ſubjects were ancient fables; and no painter was ever better qualified to paint ſuch objects, not only from his being eminently ſkilled in the knowledge of the ceremonies, cuſtoms, and habits of the ancients, but from his being ſo well acquainted with the different characters which thoſe who invented them gave their allegorical figures. Schools.

If Pouſſin, in the imitation of the ancients, repreſents Apollo driving his chariot out of the ſea by way of repreſenting the ſun riſing, if he perſonifies lakes and rivers, it is no way offenſive in him, but ſeems perfectly of a piece with the general air of the picture. On the contrary, if the figures which people his pictures had a modern air or countenance, if they appeared like our countrymen, if the draperies were like cloth or ſilk of our manufacture, if the landſcape had the appearance of a modern view, how ridiculous would Apollo appear? inſtead of the ſun, an old man; or a nymph with an urn, inſtead of a river or a lake.

Pouſſin, however, more admired than imitated, had no manner of influence in forming the French ſchool. Simon Vouet, his enemy and perſecutor, had this honour, becauſe his pupils, in the happy age of the arts in France, conferred on it the higheſt ſplendor. Vouet was a man of diſtinguiſhed abilities; but the ſchool which he erected would have had no continuance if his ſcholars had purſued his manner of painting. He had a kind of grandeur and facility; but his deſign was falſe with regard to colours, and without any idea of expreſſion. It was ſaid of him, that he only needed to take the pencil in his hand to finiſh with one ſtroke the ſubject which he had conceived; and on this account one is tempted to be pleaſed, becauſe he is aſtoniſhed. He had the merit of deſtroying the inſipid manner which reigned in France, and of pointing the way to a better taſte.

If Vouet laid the foundation of the French ſchool, Le Brun finiſhed the edifice. When Le Brun was placed under the tuition of Vouet, he aſtoniſhed his maſter and the reſt of his pupils with the rapidity of his progreſs. At the age of 26 he finiſhed his piece called the *horſes of Diomede*, which gained a place in the palace royal (A), beſide thoſe of the moſt eminent painters. He was afterwards recommended to Pouſſin; but the young artiſt was more diſpoſed by his natural inclinations to that modern part of the art which is called the *great machine*, than to the profound and ſtudied manner of the Greek artiſts. Pouſſin at the ſame time was of great ſervice to him, in recommending to his ſtudy the monuments, the cuſtoms, the dreſs of the ancients; their architecture, their rites, their ſpectacles their exerciſes, their combats, and their triumphs.

Le Brun had a noble conception and a fruitful imagination. He was on no occaſion inferior to the vaſt compoſitions which he undertook, and he chiefly excelled in rigorous coſtume and exact likeneſſes.

Few painters have united ſo great a number of eſſential

(A) Where it may now be is uncertain. Perhaps it periſhed during the revolutionary frenzy of the French, which at firſt threatened the utter deſtruction of every thing connected with ſcience or the liberal arts.

Schools. tial qualities and acceſſories of the art; and if he had ſuperiors, it conſiſted in this, that they poſſeſſed ſome particular quality in a more eminent degree.—He was a good drawer, but his deſign was far from being ſo elegant as that of Raphael, or ſo pure as that of Domenique, and it was leſs lively than that of Hannibal Caracci, whom he had taken for a model. In drapery he followed the Roman ſchool: the clothes which he gave to his figures were not like thoſe of the Venetian ſchool, of ſuch and ſuch a ſtuff; they were draperies and nothing more, and this manner agreed with the heroic ſtyle of his works; but in this part he was not equal to the painter of Urbino.—He had ſtudied the expreſſion of the affections of the ſoul, as is evident from his treatiſe on the character of the paſſions: but after obſerving the general characters, and eſtabliſhing the principal ſtrokes of expreſſion, he thought he reached the whole extent of this ſubject, which is ſo infinitely extended. He always employed the few characters which he had once found out, and neglected to ſtudy the prodigious variety of gradations by which the interior affections are manifeſted in the exterior appearance. He fell then into the manner of repeating always; and poſſeſſed neither the delicacy, nor the depth, nor the extreme juſtneſs, of Raphael's expreſſion. He loved and poſſeſſed in a high degree the grand machine of the art; he was delighted with great compoſitions; and he gave them life, and animation, and variety; but he wanted the vigour and inſpiration of Raphael. His compoſitions are formed on philoſophical principles, but thoſe of Raphael are created. Le Brun thought well; Raphael, Pouſſin, Le Sueur, thought moſt profoundly.—Le Brun had elevation, but he was not elevated like Raphael, to the ſublime.

In colouring, Le Brun did not imitate the painters of the Venetian ſchool. The ſweet attractions and ſtrong and ſolid colours of the ſchools of Rome and Lombardy ſeem rather to have been the object of his imitation; and and from them alſo he learned an eaſy, agreeable, and bold management of the pencil.

As Le Brun poſſeſſed a great ſhare of lively imagination, he delighted in allegory, which gives the greateſt ſcope for ingenious invention. The fecundity and reſources of his imagination appeared ſtill farther, in his inventing ſymbols for his allegorical figures, without reſting contented with thoſe employed by the ancients. But fanciful repreſentations of this kind are diſtant from the operations of true genius. Spirit and thought in the arts are very different from ſpirit and thought in literary productions. A painter of moderate abilities may introduce into his works a great deal of the invention which belongs to poetry without enriching his peculiar art. The true ſpirit of painting conſiſts in making the figures appear in the very circumſtances and attitudes in which they are ſuppoſed to act, and penetrated with the ſentiments with which they ought to be affected. By theſe means the ſpectator is more certainly intereſted than if the actions and thoughts were repreſented by allegorical ſymbols. Pouſſin appears to have leſs waſte of ſpirit and imagination than Le Brun, while at the ſame time he gives more delight to people of ſpirit and imagination.

Euſtach le Sueur was the contemporary and rival of Le Brun; and no painter approached nearer to Raphael in the art of drapery, and in diſpoſing the folds in the moſt artful and the nobleſt manner. His deſign was in general more ſlender than that of Raphael, but, like his, it was formed on the model of the ancients. Like Raphael he repreſented with art and preciſion the affections of the ſoul; like him, he varied the air of the head, according to the condition, the age, and the character of his perſonages; and, like him, he made the different parts of every figure contribute to the general effect. His intention in compoſing was to expreſs his ſubject, not to make ſhining contraſts or beautiful groups of figures, not to aſtoniſh and bewitch the ſpectator by the deceitful pomp of a theatrical ſcene, or the ſplendor of the great machine. His tones are delicate, his tints harmonious, and his colours, though not ſo attractive as thoſe of the ſchools of Venice and Flanders, are yet engaging. They ſteal peaceably on the ſoul, and fix it without diſtraction on the parts of the art, ſuperior to that of colouring. Schools.

His preaching of St Paul, and the picture which he painted at St Gervais, which the critics compare with the beſt productions of the Roman ſchool, and the 22 pictures which he painted for the Carthuſian monaſtery at Paris, and which were formerly in poſſeſſion of the king, are eſteemed his beſt pieces. His contemporaries affirm, that he conſidered as ſketches merely thoſe excellent performances which are the glory of the French ſchool.

If Le Sueur had lived longer, or if, like Le Brun, he had been employed under a court, fond of the arts, and of learning, to execute the great works of the age, the French ſchool would have adopted a different and a better manner. The noble beauty of his heads, the ſimple majeſty of his draperies, the lightneſs of his deſign, the propriety of his expreſſion and attitudes, and the ſimplicity of his general diſpoſition, would have formed the character of this ſchool. The deceitful pomp of theatrical decoration would have been more lately introduced, or perhaps would never have appeared, and Paris might have been the counterpart to Rome. But as Le Brun, by an accidental concurrence of favourable circumſtances, was the faſhionable painter, to be employed or rewarded it was neceſſary to imitate his manner; and as his imitators poſſeſſed not his genius, his faults became not only current but more deformed.

The French ſchool not long ago changed its principles; and if, when peace ſhall be reſtored to this unhappy nation, they continue to follow the road which, while the artiſts flouriſhed among them, they marked out for themſelves, they have the chance of becoming the moſt rigid obſervers of the laws impoſed on the Greek artiſts. The count de Caylus, pupil of Bouchardion, who by his rank and fortune had the means of encouraging the imitators of the ancients, and of the maſters of the 15th century, firſt formed the deſign of reſtoring a pure taſte to the art of painting. He was ſeconded by the talents of M. Vien, an artiſt who had only occaſion to have his leſſons and his example laid before him.—In this manner commenced a revolution, ſo much the more wonderful, as it was ſcarcely ever known that any nation ſubſtituted a ſyſtem of ſimple and rigid excellence in place of a falſe and glittering taſte. The hiſtory of all nations, on the contrary, diſcovers a gradual progreſs from a rude beginning to perfection, and afterwards to irremediable decay. The French had the proſpect of ſtopping ſhort in this ordinary courſe. They

began

Schools. began in a manner which promiſed ſucceſs; and the beſt conſequences may be expected, from being in poſſeſſion of thoſe precious treaſures of ſculpture and painting of which they plundered the countries ſubdued by their arms.

18 The German ſchool.

In Germany there can hardly be ſaid to be a ſchool, as it is a continuation of ſingle artiſts, who derived their manner from different ſources of originality and imitation. There were ſome German painters of eminence, when the art, emerging from its barbarous ſtate, firſt began to be cultivated with ſucceſs in Europe. As they were totally unacquainted with the ancients, and had ſcarcely acceſs to the works of their contemporaries in Italy, they copied nature alone, with the exception of ſomewhat of that ſtiffneſs which forms the Gothic manner. It is this manner, if we ſpeak of the early German painters, which characterizes their ſchool. But this is by no means the caſe with their ſucceſſors, part of whom were educated in Flanders and part in Italy: For if Mengs or Dietrich were comprehended in this ſchool, there would be nothing peculiar to its manner diſcovered in their works. And it is therefore neceſſary to confine our obſervations to the more ancient German painters, in whom the Gothic ſtyle is conſpicuous.

Albert Durer was the firſt German who corrected the bad taſte of his countrymen. He excelled in engraving as well as painting. His genius was fertile, his compoſitions varied, his thoughts ingenious, and his colours brilliant. His works, though numerous, were finiſhed with great exactneſs; but as he owed every thing to his genius, and as works of inferior merit were by the falſe taſte of the times preferred to his, it was impoſſible for him altogether to avoid the faults of his predeceſſors. He is blamed for ſtiffneſs and aridity in his outlines, for little taſte or grandeur in his expreſſion, for ignorance of the coſtume of aerial perſpective and of gradation of colours; but he had carefully ſtudied lineal perſpective, architecture, and fortification.

John Holbeen or Holbein, nearly contemporary with Albert Durer, painted in oil and water colours. He excelled chiefly in hiſtory and in portrait painting. His colours are freſh and brilliant, and his works are highly finiſhed; but in his hiſtorical ſubjects, his draperies are not in ſo good a taſte as thoſe of Albert Durer.

19 The Flemiſh ſchool.

The Flemiſh ſchool is recommended to the lovers of the art by the diſcovery, or at leaſt the firſt practice, of oil painting. Van Mander gives us the account of this wonderful diſcovery in the following words: "John Van Eyck was ſo excellent a chemiſt, that he diſcovered a method of varniſhing his diſtemper colours with a varniſh, which was made of ſome oils, and was very pleaſing on account of the gloſs and luſtre it gave them. Many artiſts in Italy had vainly attempted to find out that ſecret; they never hit on the true method. It happened once that John, in his uſual manner, having highly finiſhed one of his pictures on boards, and having varniſhed it with his new invented varniſh, expoſed it to dry in the ſun; but whether the boards were not well joined, or whether the heat of the ſun was too violent, the boards ſplit aſunder and opened in the junctures. John ſaw with concern that his work was ſpoiled, and reſolved to contrive ſomething againſt future accidents of the ſame kind. Being diſguſted at diſtemper painting and varniſhing, he thought of a varniſh that might dry without ſunſhine; and having tried many oils and ſubſtances, he found that linſeed and nut oil dried better than any other. He boiled them with ſome other drugs, and produced the beſt varniſh in the world. Ever bent on improvements, he found, after much inquiry, that colours mixed with theſe oils worked and dried extremely well, and when dried would be water-proof. He obſerved likewiſe, that theſe oils would animate and give them a gloſs and luſtre without any farther varniſhing." The truth, however, of this account is now very much queſtioned; and it is even proved by the manuſcripts of Theophilus Preſbyter, and alſo by ſome old paintings in England, that this method of painting was diſcovered long before the time of John Van Eyck. At the ſame time we admit, that John and his brother Hubert may have been the firſt who brought oil painting into general practice, not only by ſhowing the excellence of which it was ſuſceptible, but alſo by making ſeveral improvements on the art. And this is the more probable, from the great reputation which their pictures acquired over all Europe, by the ſoftneſs and delicacy of their colours. The attention of the Italian painters was chiefly excited, inſomuch that Antoine de Meſſina performed a journey into Flanders for the expreſs purpoſe of acquiring the confidence of John Van Eyck, and of diſcovering the ſecret. Schools.

John de Bruges was the founder of painting as a profeſſion in Flanders; Peter Paul Rubens was the founder of the art. This extraordinary perſon produced an immenſe number of works. He excelled equally in hiſtorical, portrait, and landſcape painting; in fruits, flowers, and in animals. He both invented and executed with the greateſt facility; and to ſhow the extent of his powers, he frequently made a great number of ſketches on the ſame ſubject altogether different, without allowing any time to elapſe between them. The works of Rubens were deſtitute of that ſoft inſpiration, productive of ſweet and pleaſant effects, ſo conſpicuous in the works of Raphael; but he poſſeſſed that ſprightlineſs of genius and ſtrength of mind which is ever ready to burſt forth in wonderful and aſtoniſhing effects. His figures appear to be the exact counterpart of his conceptions, and their creation nothing more than a ſimple act of the will.

His talent for deſign is unjuſtly cenſured, for on every occaſion his deſign is noble and eaſy. He had great knowledge of anatomy, but he was hurried away by the impetuoſity of his imagination and the ardour for execution; he preferred ſplendor to the beauty of forms, and ſacrificed correctneſs of deſign too often to the magic of colours. In ſhort, his qualities ſuppoſe a mind full of fire and vigour, rather than accuracy or profound thought. His drapery may be conſidered rather as fine than properly adapted to his figures; for, in the language of the art, to *clothe* and to *give drapery* are not ſynonymous terms. A portrait painter may excel in clothing his perſonages, while he is totally incapable of giving good drapery to a hiſtorical painting. His chief merit conſiſts in colouring; though in this branch of the art he has not equalled Titian. He is the firſt among painters eminent for pomp and majeſty; the firſt among thoſe who ſpeak to the eye, and the power of the art is often carried by him almoſt to enchantment.

It is evident from the works of Rubens, that his method of painting was to lay the colours in their place, one at the ſide of another, and mix them afterwards by

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"Rubens (ſays Sir Joſhua Reynolds) is a remarkable inſtance of the ſame mind being ſeen in all the various parts of the art. The whole is ſo much of a piece, that one can ſcarce be brought to believe but that if any one of them had been more correct and perfect, his works would not be ſo complete as they appear. If we ſhould allow a greater purity and correctneſs of drawing, his want of ſimplicity in compoſition, colouring, and drapery, would appear more groſs."

In his compoſition his art is too apparent. His figures have expreſſion, and act with energy, but without ſimplicity or dignity. His colouring, in which he is eminently ſkilled, is notwithſtanding too much of what we call *tinted*. Throughout the whole of his works there is a proportionable want of that nicety of diſtinction and elegance of mind, which is required in the higher walks of painting; and to this want it may be in ſome degree aſcribed, that thoſe qualities which make the excellency of this ſubordinate ſtyle appear in him with their greateſt luſtre.—Indeed the facility with which he invented, the richneſs of his compoſition, the luxuriant harmony and brilliancy of his colouring, ſo dazzle the eye, that, whilſt his works continue before us, we cannot help thinking that all his deficiencies are fully ſupplied.

The Flemiſh ſchool, of which Rubens is the greateſt maſter, is remarkable for great brilliancy of colours and the magic of the *claro-obſcuro*. To theſe may be joined a profound deſign, which is yet not founded on the moſt beautiful forms; a compoſition poſſeſſed of grandeur, a certain air of nobleneſs in the figures, ſtrong and natural expreſſions; in ſhort, a kind of national beauty, which is neither copied from the ancients nor from the Roman nor Lombard ſchools, but which deſerves to pleaſe, and is capable of pleaſing.

20 The Dutch ſchool. To ſpeak in general terms, and without regarding a great number of exceptions, the Dutch ſchool carries none of the above qualities to great perfection, except that of colouring. Far from excelling in the beauty of heads and forms, they ſeem chiefly to delight in the exact imitation of the loweſt and moſt ignoble. Their ſubjects are derived from the tavern, the ſmith's ſhop, and from the vulgar amuſements of the rudeſt peaſants. The expreſſions are ſufficiently marked; but it is the expreſſion of paſſions which debaſe inſtead of ennobling human nature. One would think that they practiſed the art of degrading the bodies and ſouls of men.

It muſt be acknowledged, at the ſame time, that the Dutch painters have ſucceeded in ſeveral branches of the art. If they have choſen low objects of imitation, they have repreſented them with great exactneſs; and truth muſt always pleaſe. If they have not ſucceeded in the moſt difficult parts of the claro-obſcuro, they at leaſt excel in the moſt ſtriking, ſuch as in light confined in a narrow ſpace, night illuminated by the moon or by torches, and the light of a ſmith's forge. The Dutch underſtand the gradations of colours; and by their knowledge of contraſt they have arrived at the art of painting light itſelf. They have no rivals in landſcape painting, conſidered as the faithful repreſentation or picture of a particular ſcene; but they are far from equalling Titian, Pouſſin, Claude Lorrain, &c. who have carried to the greateſt perfection the ideal landſcape, and whoſe pictures, inſtead of being the topographical repreſentation of certain places, are the combined reſult of every thing beautiful in their imagination or in nature. The Dutch, however, diſtinguiſh themſelves by their perſpective, by their clouds, ſea ſcenes, animals, fruits, flowers, and inſects; and they excel in miniature painting. In ſhort, every thing which requires a faithful imitation, colour, and a nice pencil, is well executed by the Dutch painters. Schools.

Holland has alſo produced hiſtory painters, as Octavius Van Been, and Vander Hilſt the rival of Vandyke, and perhaps his ſuperior: but it is not in the works of thoſe artiſts that we find the character of the Dutch ſchool.

Neither is the origin of their ſtyle to be derived from the works of Lucas of Leyden, though, from the time he flouriſhed, viz. about the end of the 15th century, he may be conſidered as the patriarch of the Dutch ſchool. Lucas painted in oil, in water colours, and on glaſs; and the kinds of his painting were hiſtory, landſcape, and portrait. His picture of the Laſt Judgement is preſerved in the Hotel-de-Ville of Leyden; it poſſeſſes vaſt merit in point of compoſition, and a great variety of figures.

If miniature painting be conſidered as a characteriſtic of the Dutch ſchool, Cornelius Polembourg may be regarded as the father of it. He poſſeſſed the colour, delicacy of touch, and diſpoſition of the claro-obſcuro, which chiefly diſtinguiſh this ſchool; and if any thing is to be added, it is want of correctneſs in his deſign.

But if the choice of low figures is its chief characteriſtic, this is to be found in the greateſt perfection in the works of the celebrated Rembrandt Vanryn; and it is the more offenſive in this artiſt, as his compoſitions frequently required an oppoſite choice of figures. As his father was a miller near Leyden, his education muſt altogether have depended on the exertion of great talents and the ſtudy of nature. He ſtudied the groteſque figure of a Dutch peaſant or the ſervant of an inn with as much application as the greateſt maſters of Italy would have ſtudied the Apollo of Belvidere or the Venus de Medicis. This was not the manner of elevating himſelf to the noble conceptions of Raphael; but it was acquiring the imitation of truth in vulgar painting.

"Rembrandt (ſays M. Deſcamps) may be compared to the great artiſts for colour and delicacy of touch and claro-obſcuro. It appears that he would have diſcovered the art, though he had been the firſt perſon that ever attempted it. He formed to himſelf rules and a method of colouring, together with the mixture of colours and the effect of the different tones. He delighted in the great oppoſitions of light and ſhade; and he ſeems to have been chiefly attentive to this branch of the art. His workſhop was occaſionally made dark, and he received the light by a hole, which fell as he choſe to direct it

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on the place which he desired to be enlightened. On particular occasions he passed behind his model a piece of cloth of the same colour with the ground he wanted; and this piece of cloth receiving the same ray which enlightened the head, marked the difference in a sensible manner, and allowed the painter the power of augmenting it according to his principles.

"Rembrandt's manner of painting is a kind of magic. No artist knew better the effects of different colours mingled together, nor could better distinguish those which did not agree from those which did. He placed every tone in its place with so much exactness and harmony, that he needed not to mix them, and so destroy what may be called the flower and freshness of the colours. He made the first draught of his pictures with great precision, and with a mixture of colours altogether particular: he proceeded on his first sketch with a vigorous application, and sometimes loaded his lights with so great a quantity of colour, that he seemed to model rather than to paint. One of his heads is said to have a nose nearly as much projected as the natural nose which he copied."

Such is the power of genius, that Rembrandt, with all his faults, and they are enormous, is placed among the greatest artists by M. Descamps, who saw his works, and was himself an artist. It is necessary to observe, that if Rembrandt was ignorant of the essential parts of his art, or neglected them, he was yet acquainted with expression, which alone was capable of giving animation to his works. His expressions are not noble, but they are just, lively, and excited with great judgement.

John de Laer, a miniature painter, and who made choice of his subjects from common life, deserves a distinguished place in the Dutch school. He painted hunting-scenes, the attacks of robbers, public festivals, landscapes, and sea-views; and he ornamented his pictures with old ruins, and enriched them with figures of men and animals. He had a correct design, and employed vigorous and lively colouring.

Van Ostade, although born at Lubeck, Gerard Dow, Metzu, Miris, Wouvermans, Berghem, and the celebrated painter of flowers Van Huysum, belong to the Dutch school.

The greater part of the schools of which we have treated have no longer any existence. Italy alone had four schools, and there only remain at present a very few Italian artists known to foreigners. The school of Rubens is in vain sought for in Flanders. If the Dutch school still exists, it is not known beyond the precincts of Holland. Mengs a German artist has made himself famous in our days; but it was in Italy that he chiefly improved his talents and exercised his art. M. Dietrich, another German, has made himself known to strangers: but two solitary artists do not form a school.

21 The English school.

A new school is formed in our times and in our own country, called the *English school*. It is connected with the academy in London, instituted in 1766 by letters patent from the king, and formed only in 1769. Sir Joshua Reynolds is the undoubted founder of it. His works give him a distinguished rank among the artists of the present age, and exhibit a genius in their author which has seldom been surpassed: but the effects which he has contrived to give to them by the formation of a new school, and by the good principles which his discourses to academicians, and his example as a painter, have diffeminated, will secure his reputation as long as England shall esteem the advantages and the worth of great abilities. The English taste appears to be formed on the great masters of the Italian and the Flemish schools. Sir Joshua was a great admirer of Michael Angelo, and particularly recommends him to the attention of the academicians. "I feel (says Sir Joshua), a self-congratulation in knowing myself capable of such sensations as he intended to excite. I reflect, not without vanity, that these discourses bear testimony of my admiration of that truly divine man; and I should desire that the last words which I should pronounce in this academy, and from this place, might be the name of—*Michael Angelo*." But though he thus enthusiastically admired this very great man, yet he allows, what cannot indeed be denied, that he was capricious in his inventions: "and this (says he) may make some circumspection necessary in studying his works; for though they appear to become him, an imitation of them is always dangerous, and will prove sometimes ridiculous. 'In that dread circle none durst tread but he.' To me, I confess, his caprice does not lower the estimation of his genius, even though it is sometimes, I acknowledge, carried to the extreme: and however those eccentric excursions are considered, we must at the same time recollect, that those faults, if they are faults, are such as never could occur to a mean and vulgar mind; that they flowed from the same source which produced his greatest beauties; and were therefore such as none but himself was capable of committing; they were the powerful impulses of a mind unused to subjection of any kind, and too high to be controuled by cold criticism."

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The effect of Sir Joshua's discourses is visible in the pictures of this school. The Death of General Wolfe, the Departure of Regulus for Carthage, the Arrival of Agrippina, and some other subjects, are decided proofs that the English school is acquainted with greatness of style, boldness of expression, and the art of managing a great number of figures. It will be fortunate for the painters of this school, if, more rigid with regard to their forms than ambitious of poignant and astonishing effects, they support the character which they have already acquired. But although England had not enjoyed this brilliant success in painting, she would have immortalized herself by the excellency of her engravings.

It is easy to perceive in all those schools the cause of the character which distinguishes them. In the Roman school, it is the excellent education of its first masters, together with the precious remains of antiquity found in the ruins of ancient Rome. In the Venetian school, the magnificence derived from the commerce of the east, the frequency of feasts and masquerades, and the necessity of painting to the rich and luxurious, who were accustomed to behold these magnificent objects, were the causes of its gaudy taste. In the Dutch school, the peculiarity of its grovelling manner may be accounted for from the habits of the artists. Accustomed to visit taverns and workshops, and having most commonly exposed to their view

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low and groteſque figures, they repreſent in their pictures the objects which were moſt familiar to them in life.

* *Encyclop. Beaux Arts, tom. i.*

"Beauty (ſays a French writer *) ought to be the characteriſtic of the Engliſh ſchool, becauſe the artiſts have it often expoſed to their view. If this beauty is not preciſely ſimilar to that among the ancients, it is not inferior to it. The Engliſh ſchool ſhould alſo diſtinguiſh itſelf for truth of expreſſion; becauſe the liberty enjoyed in that country gives to every paſſion its natural and unbiaſſed operation. It will probably long preſerve its ſimplicity unpolluted by the pomp of theatrical taſte and the conceit of falſe graces, becauſe the Engliſh manners will long preſerve their ſimplicity.

"Examine the picture of a Frenchwoman (continues he) painted by an artiſt of that nation, and you will generally find, in place of expreſſion, a forced grin, in which the eyes and the forehead do not partake, and which indicates no affection of the ſoul. Examine the picture of an Engliſhwoman done by one of their painters, and you obſerve an elegant and ſimple expreſſion, which makes you at once acquainted with the character of the perſon repreſented."

Sect. III. *Compariſon between the Ancient and Modern Painting.*

No perſon of judgement or taſte heſitates to give the ſuperiority to the ancient ſculpture; but the moderns comfort themſelves with refuſing the ſame ſuperiority to the Greek artiſts in the art of painting. The ſmall number of their productions which remain, and the probable conjectures which may be formed concerning thoſe which have periſhed, go the length to prove that the Greek painters conducted themſelves on other principles than thoſe which have received the ſanction of cuſtom and the force of laws in our ſchools. But this cenſure might be applied with equal juſtice to Homer as an epic poet, and to Sophocles and Euripides as writers of tragedy.

The principal difference between the ancient and modern manner of painting conſiſts in the complication of figures, and the pompous decoration of ſcenery which prevails in the modern, when compared with the unity and ſimplicity of the ancient painters. This ſimplicity, however, does not ſeem to ariſe from the want of capacity, but from a choice, as Polygnotus, one of their moſt ancient painters, repreſents in one of his pieces the ſiege of Troy, and in another the deſcent of Ulyſſes into hell; but they ſoon decided in favour of ſimplicity, and their pieces generally contain one or two figures, and very rarely more than three or four.

Poetry in this particular is conducted on very different principles. A poet may with great propriety multiply his characters, and enter into details of a variety of actions, becauſe the whole of his characters and actions do not occupy the mind of his reader at the ſame time. The whole of his art conſiſts in making one naturally ſucceed another; but every part of the poem which contains a ſeparate tranſaction would make a picture capable of fixing the attention. In painting, the eye takes in the whole; and it is by no means ſatisfied if 20 or 30 figures are preſented to it, which it cannot poſſibly comprehend. It is in vain to group the figures, or to call the attention to the principal object by a greater degree of light; the ſpectator is anxious to examine every object which is preſented to him; and if they are not to be examined, for what reaſon are they painted? An excellent piece, at the ſame time, conſiſting of a great number of figures, will give pleaſure; but it is accompanied with that fatigue which one experiences when he runs over a gallery furniſhed with a great variety of excellent pictures.

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Thoſe obſervations on the attention of the ſpectator led the Greeks to make ſimilar ones on the attention of the artiſt. They perhaps thought that the painter who had to execute a great variety of figures in the ſame work, could not ſtudy each of them with equal accuracy and care; and of conſequence that he might produce ſomething aſtoniſhing in the extent, and yet diſguſting in the detail.

This difference, however, between ancient and modern painting, cannot give any decided principle to determine on their comparative merit. We are accuſtomed to behold aſſemblages in nature; and it is a fact, that even in affecting ſcenes a great number of figures may not only be brought together, but that they may heighten the diſtreſs. It is ſuppoſing a picture to have little effect, to imagine that we can coolly, and with the ſame kind of attention, examine the principal and the acceſſory figures. If it is highly finiſhed, our whole ſoul muſt be abſorbed in that object which the artiſt intended to be moſt conſpicuous; and if we give any attention to the ſurrounding figures, we ſhall conſider them as ſpectators of the ſame ſcene, and derive from them an addition of ſympathy and of feeling. The whole queſtion in this particular point of view amounts to this, that the moderns have choſen a more difficult part; and if they have executed it with ſucceſs, their merit is greater. And this obſervation will hold good, unleſs it can be proved that it is utterly impoſſible to make an aſſemblage of figures lead to one general and common effect.

The proper manner of deciding the comparative merit of the ancients and moderns, is to conſider, as far as we have ſufficient data to go upon, to what degree the ancients excelled in the particular departments of this art. There are two ſources from which we can derive information; namely, from the morſels of antiquity which yet remain, and from what the ancient writers have ſaid on the ſubject of painting, both of which are extremely defective. It is allowed, however, by every ſkilful perſon who has viewed the remains of ancient paintings, that none of them appear to be the performances of ſuperior artiſts, notwithſtanding much merit in the deſign and accuracy in the drawing, which indeed ſeems to have been habitual to almoſt every ancient artiſt. The beſt among theſe paintings (according to Sir Joſhua Reynolds), "the ſuppoſed marriage in the Aldrobandine palace," is evidently far ſhort of that degree of excellence undoubtedly implied in the deſcriptions of ancient authors, and which from them we are fairly led to expect.

Still more defective, if poſſible, is this laſt ſpecies of evidence: for we have no direct treatiſe remaining on the ſubject by any of the ancients, although many were compoſed by their artiſts. The paſſages from which we

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are to decide are, either the curſory remarks of writers not expreſsly treating on the ſubject of painting, or the deſcriptions of thoſe who at beſt can rank but as *amateurs* of a faſhionable art. From theſe indeed we may pretty ſafely aſſert the degree of excellence which the paſſages imply; but we ſhould reaſon very inconcluſively, were we to deny them any higher or any other merit than appears to be ſtrictly contained in theſe ſcattered obſervations. Let any one for a moment place the modern painters in his mind in the ſame ſituation as the ancients, and he will quickly decide on the truth of theſe remarks.

Nevertheleſs, it is neceſſary on this ſubject to derive ſome concluſions from the information which is occaſionally given in ancient authors. That the ancients paid a particular attention to deſign, would be evident from the manner in which they ſpeak of this department of the graphic art, even though the moderns were not in poſſeſſion of ſuch remaining proofs of their excellence herein, (though by artiſts of an inferior claſs), as to place this point beyond the reach of doubt.

Indeed, when it is conſidered that, with reſpect to freedom and correctneſs of outline, painting and ſculpture are very nearly connected; that Phidias and Apelles were nearly contemporaries; that many of the ancient painters, ſuch as Zeuxis, Protogenes, Apelles, &c. were accuſtomed to modelling for the purpoſe of ſculpture or of caſting; that the extreme elegance of deſign in the ancient ſtatues is ſo notorious as to be the acknowledged model even for modern artiſts; and that theſe ornaments of ſculpture were well known and univerſally admired among the ancients—we ſhall have little heſitation in admitting their equality with the moderns ſo far as deſign is concerned. But ſhould any doubt remain on this point, the drawings from the antiquities of Herculaneum will be ſtriking proofs that truth, elegance, and ſpirit, in a degree rarely to be met with among the moderns, were habitual even to the common run of artiſts in the declining age of ancient painting.

The ancients excelled moreover not merely in the common and obvious parts of deſign; but they appear to have had no inconſiderable degree of ſkill in the art of *foreſhortening*. The performance of Pauſanias is a proof of this: *Fecit autem grandes tabulas ſicut ſpectatam in Pompeii porticibus boum immolationem. Eam enim picturam primus invenit, quam poſtea imitati ſunt multi, equavit nemo. Ante omnia, cum longitudinem bovis oſtendere vellet, adverſum eum pinxit, non tranſverſum, et abundè intelligitur amplitudo. Dein cum omnes qui volunt eminentia videri, candicantia faciant, coloremque condant, hic totum bovem atri coloris fecit; umbræque corpus ex ipſo dedit; magna prorſus arte in æquo extantia oſtendens et in confracto ſolida omnia.*

Nor will it be difficult to ſhow, that the ancient painters were not inferior to the moderns in *expreſſion*. The ſtate of ſculpture alone among the ancients would almoſt furniſh a deciſive proof that the ſiſter art of painting could not be deficient. Among the ancient ſtatues which yet remain, expreſſion is carried to a wonderful height; not merely the features of the face, but almoſt every muſcle of the body, combining to enforce the idea intended to be conveyed.

Mr Webb * very properly obſerves, that "the ancients thought characters and manners ſo eſſential to painting, that they expreſsly term *painting* an art deſcriptive of manners. Ariſtotle in his *Poetics* ſays of Polygnotus, that he was a painter of the manners; and objects to Zeuxis, his weakneſs in this part." We have in Philoſtratus the following deſcription of a picture: "We may inſtantly (ſays he) diſtinguiſh Ulyſſes by his ſeverity and vigilance; Menelaus by his mildneſs; and Agamemnon by a kind of divine majeſty. In the ſon of Tydeus is expreſſed an air of freedom; Ajax is known by his ſullen fierceneſs; and Antilochus by his alertneſs. To give to theſe ſuch ſentiments and actions as are conſequential from their peculiar characters, is the ethic of painting."

Another inſtance of excellence in expreſſion among the ancient paintings was the Medea of Timomachus. She was painted about to kill her infants. Auſonius ſpeaks with admiration of the mingled expreſſion of anger and maternal fondneſs in her face and manner.

Immanem exhauſit rerum in diverſa laborem
Fingeret affectum matris ut ambiguum,
Ira ſub eſt lachrymis, miſeratio non caret ira,
Altere utrum videas ut ſit in altere utro.

It may not be amiſs, however at this period of our inquiry, to make ſome obſervations on the teſtimonies of ancient authors reſpecting this ſubject.

It is certainly true, that when the works of an ancient artiſt are praiſed for any real or ſuppoſed merit, the commendations will be relative to the degree of perfection to which the art had ariſen at the time, and to the opportunities of information, the taſte, and judgement of the perſon who beſtows them. Excellence will always be aſcribed to him who leaves his cotemporaries far behind; and thoſe performances will often be conſidered as ſupremely beautiful which exceed in beauty all that have gone before.

In like manner, a perſon of natural ſenſibility, but who has been accuſtomed all his life to performances of an inferior ſtamp, will be in raptures at any which much exceed the beſt he has heretofore been taught to admire; and whatever opportunities of information he may have, his evidence will not be of much weight, if he do not poſſeſs a ſufficient degree of taſte and judgement to uſe them properly.

In aſcertaining therefore the degree of credit due to the praiſes beſtowed on any performance in a branch of the fine arts, we muſt take into conſideration the general ſtate of the art at the time, and the competence of the perſon who beſtows the praiſe.

No ſlight degree of probability, however, may be attained on both theſe points, by attending to a circumſtance not generally noticed, viz. that in an advanced ſtate of the art, and when the obſerver is acquainted with his ſubject, the praiſe will ſeldom be given in looſe, general, and comprehenſive expreſſions; but the terms in which it is conveyed will be characteriſtic and determinate, and often technical; they will frequently ſhow the ſtate of the art, by marking the ſubdiviſions and the ſkill of the obſerver by judicious diſcrimination. When, added to theſe, the latter can reſort for compariſon to any exiſtent ſtandard of perfection, his praiſe may fairly be adopted in its full extent, and regarded as evidence upon the point in queſtion.

To apply theſe obſervations to painting, it is clear, with

* *On Painting and Poetry*, p. 149.

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with reſpect to the moſt difficult, the moſt fundamental, and the higheſt in rank among the departments of the art, viz. deſign and expreſſion, that the ancients were fully equal to the moderns; and their expreſſions of praiſe muſt be allowed to imply an equal degree of abſolute ſkill, with ſimilar expreſſions, if applied to the great maſters of modern art. It is alſo clear that painting was extremely cultivated among the ancients, and that their good painters were more eſteemed than artiſts of equal merit in modern times; that what we ſhould term gentlemen artiſts were frequent with them (*apud Romanos quoque honos maturè huic arti contigit*); and that the expreſſions of the ancient connoiſſeurs evince much theoretical and technical knowledge of the art, and diſplay a diſtribution of its parts almoſt as minute, complete, and ſcientific, as the preſent ſtate of it can boaſt.

With regard to colouring, the praiſes of the ancient authors chiefly relate to the ſtyle of it as exerted upon ſingle figures or particular tints. It may therefore be doubted whether the ancients were poſſeſſed of the art of diſtributing their colours through the whole of a picture, ſo as to produce an harmony and general tone of colouring ſimilar to that which we admire in the Lombard and Flemiſh ſchools. The preſent remains of ancient paintings do not appear to warrant any ſuch concluſion; but being undoubtedly the works of inferior hands, their authority is very ſmall when alledged againſt the general or particular merit of the ancient artiſts. The following extracts will be ſufficient to evince, that the ancients did attend to this technical branch of colouring.

Indeed the modern technical expreſſions appear borrowed from the following paſſage of Pliny, which may be regarded as deciſive on the ſubject. *Tandem ſeſe ars ipſa diſtinxit, et invenit* lumen atque umbras, *differentia colorum alterna vice ſeſe excitante. Dein adjectus eſt ſplendor; alius hic quam lumen; quem quia inter hoc et umbram eſſet appellaverunt tonon. Commiſſuras vero colorum et tranſitus*, harmogen. The *lumen atque umbras* of this paſſage might have been regarded as merely deſcriptive of the light and ſhade neceſſary to relieve ſingle figures, if it were not for the ſubſequent definition of *tone*. The *harmogen* of Pliny means the *handling* or ſkilful blending and ſoftening colours into one another, rather than what we now call *harmony*.

*In his *Zeuxis.*

Lucian *, in his fine deſcription of that ſpirited painting by Zeuxis of the male and female centaurs, after relating the treatment of the ſubject itſelf, proceeds to notice the technical execution of the picture; and he praiſes particularly the truth and delicacy of the drawing, the perfect blending of the colours, the ſkilful ſhading, the ſcientific preſervation of ſize and magnitude, and the equality and harmony of the proportions throughout the whole piece.

Painters, ſays Plutarch, increaſe the effect of the light and ſplendid parts of a picture by the neighbourhood of dark tints and ſhades. And Maximus Tyrius obſerves, that bright and vivid colours are always pleaſant to the eye; but this pleaſure is always leſſened if you omit to accompany them with ſomewhat dark and gloomy. Theſe paſſages ſeem to imply a knowledge of the uſe of cold and dark tints even where a brilliancy of tone is required. The beſt among the ancient painters, however, ſeem to have preferred a chaſte and ſober ſtyle of colouring to the gaudineſs and flutter of the later artiſts.

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Upon the whole, therefore, with reſpect to colouring as employed upon ſingle figures, as the ancients were fully as competent to judge of excellence herein as the moderns; as the expreſſions of the ancient connoiſſeurs are very warm in praiſe of the colouring of many of their painters; as they appear alſo to have attended very much to the art of colouring; and, moreover, as probable evidence can be adduced that they attended to miniature painting—a conſiderable degree of merit may be allowed them in the uſe of the colours they poſſeſſed.

Chiaro-ſcuro, or the art of placing and proportioning light and ſhade in ſuch a manner as to produce a pleaſing effect, independently of any other circumſtance connected with the picture, has been commonly deemed a characteriſtic difference between the knowledge of ancient and modern painters. On this ſubject the works of the ancients now remaining give little or no information; hence Sir Joſhua Reynolds obſerves, "that this, which makes ſo conſiderable a part of the modern art, was to them totally unknown. If the great painters had poſſeſſed this excellence, ſome portion of it would have infallibly been diffuſed, and have been diſcovered, in the works of the inferior ranks of artiſts which have come down to us, and which may be conſidered as on the ſame rank with the paintings that ornament our public gardens." But the accounts of the places where theſe paintings have been found, make it evident that they were thus ornamented at a very conſiderable expence. The generality of them conſiſt of ſingle figures; ſome of them of two or three figures, generally relieved by an uniform ground; and, except in a few inſtances, evidently deſigned as mere reliefs to a compartment, and anſwering, as near as may be, to the ſtuccoed ornaments in our modern rooms; nor do any of them ſeem the works of artiſts equal in their day to thoſe at preſent employed on the painted ceilings of private houſes.

The Abbé du Bos maintains, on the other hand, that what Pliny and other ancient writers ſay concerning the claro-obſcuro and the delightful diſtribution of light and ſhade, is altogether deciſive; and that their writings are full of ſo many probable circumſtances, that it cannot be denied that the ancients at leaſt equalled the moſt celebrated of the moderns in this part of the art.

On the examination of the greater part of the paſſages from antiquity, it is evident that they may relate to the light and ſhade of ſingle figures, without involving what is now called the ſcience of the claro-obſcuro. The paſſage of Pliny, however, already quoted, and ſeveral others, go very near to prove that this branch of painting was underſtood among the ancients. The dark, the light, and mezzotint are evidently and accurately deſcribed in that paſſage.

Equally ſtrong is that expreſſion in Quintilian: *Zeuxis luminum umbrarumque rationem inveniſſe traditur*. This cannot well be otherwiſe tranſlated than by the *ſcience* of light and ſhade.

That ſome technical knowledge of the effect producible by *maſſes* of light and ſhade was poſſeſſed by the ancients, appears indubitable from the paſſages adduced:

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to what extent it was carried cannot now be aſcertained. In all probability they were much inferior in this reſpect to the moderns; otherwiſe, although much ſcience of this kind could hardly be expected from the trifling performances that remain, much more would have occurred on the ſubject, it would have been more largely dwelt on, and more preciſely expreſſed among the obſervations of ancient authors on the beſt painting of the ancient maſters.

Neither is there ſufficient evidence that the ancients were eminent in that important branch of the compoſition of a picture, which conſiſts in diſtributing the figures and objects in groups or maſſes. There are few examples of this difficult branch of the art among the remaining antiquities; and indeed from the paucity of the figures introduced in the generality of theſe ancient paintings, there is little room to expect them. But what makes it ſtill more doubtful whether the ancients attained any degree of eminence in grouping is, that among the many paintings of theſe great maſters enumerated by Pliny, Lucian, or Philoſtratus, there is none of them praiſed for this ſpecies of excellence. This, however, it muſt be confeſſed, may as well ariſe from want of knowledge in the writer as of ſkill in the artiſt; for in a picture found in Herculaneum, which repreſents in all probability the education of Achilles, the figure of an old man holding a child on his knees, together with that of a woman behind him, form a very agreeable group. A work of the ſame collection, painted in one colour on marble, conſiſts of five figures grouped very much after the modern idea, if it were not that three of the heads are at the ſame height. It is extremely probable, that this morſel had been the copy of a picture finiſhed in the pureſt times of the art. But although it were proved that the ancients did not attempt grouping their figures, it is ſtill uncertain whether this might not ariſe from their peculiar and perhaps excellent taſte in the arts. Wiſhing to enjoy in the fulleſt manner their painted figures as they enjoyed the aſpect of a ſtatue, they took care that every figure ſhould be detached from another in the ſame picture, which permitted them to give their objects more relief, and to render them more diſtinct to the eye of a diſtant ſpectator.

We are not therefore to conclude, that they were entirely ignorant of grouping, on the one hand; or that they declined the execution of it from want of ſkill, on the other. Indeed it actually appears to have been technically attended to by them, whatever might be their comparative excellence in it; for Apelles is expreſsly aſſerted by Pliny to have been inferior to Melanthius in compoſition *(de diſpoſitione)*: and one of their paintings mentioned by the ſame author, is ſaid to have contained one hundred figures; but this unwieldy number muſt have been offenſive, if they were not grouped with ſome ſkill.

From the connection between the ſiſter arts of poetry, painting, and ſculpture, and the admirable performances of the ancients in the other two departments of the fine arts, it is reaſonable to conclude that the ancient painters were not deficient in invention. Many inſtances, were it neceſſary, might be collected in ſupport of their well-founded claim to this branch of the art; but it will be ſufficient to obſerve, that as invention is rather a natural endowment than an acquired talent, and as the ancients univerſally ſeem to be at leaſt equal to the moderns in the gifts of genius and good ſenſe, we cannot but admit, on their part, an equality with ourſelves ſo far as invention is concerned.

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Very nearly connected with the ſubject of invention is that of the *coſtume;* by which is meant an attention to probability with reſpect to times, places, objects, perſons, and circumſtances in the tranſaction repreſented.

The ancient paintings now remaining, ſo far from exhibiting any proofs of attention to this important branch of the art, are full of groſs violations of probability, and repreſentations of impoſſible connection. But very little ſtreſs is to be laid on theſe inſtances; firſt, becauſe they are evidently the performances of artiſts of no reputation; ſecondly, becauſe none of them to which this objection can be made are regular repreſentations of any perſon or tranſaction; and thirdly, becauſe, as they were (for the moſt part) manifeſtly intended as ornaments to apartments, the taſte of the owner, and not of the artiſt, would of courſe be chiefly conſulted. Nothing, however, can be more clear than that the ancients required an attention to probability in the works of their artiſts; and from the manner in which their writers expreſs themſelves on the ſubject (not ſo much recommending the practice of it as taking it for granted), we may reaſonably conclude, that their beſt painters were ſeldom guilty of any groſs violation of the coſtume. *Sint ficta ſimillima veris* was an apophthegm generally known, and when known muſt have been univerſally admitted.

The principles of the coſtume are well expreſſed and illuſtrated by Horace in the firſt lines of his Art of Poetry; and Vitruvius, lib. vii. chap. 5. ſays, that no pictures can be approved of which have not a reſemblance to truth and nature. Whether the ancient painters put in practice a greater ſhare of good ſenſe with reſpect to the coſtume than the moderns, cannot now be accurately determined; the advantage ſeems to be in favour of the former: for, as we ſhall have occaſion more particularly to obſerve afterwards, the moſt celebrated of modern painters from Raphael to Sir Joſhua Reynolds have been guilty of ſuch flagrant breaches of probability, as would appear aſtoniſhing to thoſe who are not in the habit of expecting them.

It has been doubted whether the ancients were acquainted with the ſcience of *perſpective:* and if the remains of ancient painting were alone to decide the queſtion, it muſt be determined againſt them: for the works of the ancient painters now in poſſeſſion of the moderns afford no proof of attention to the rules of perſpective equal to the performance of a modern ſign-painter. The picture of the ſacrifice among the Herculanean antiquities, and the fourth of the prints which Bellori has publiſhed and deſcribed, taken from the paintings in the ſepulchre of the Naſonii, are barely tolerable; but the other landſcapes (almoſt the only remaining antique paintings which admit of perſpective) are groſsly defective in this particular; ſo much ſo indeed, that conſidering the late period when landſcape-painting was introduced among the ancients, together with this manifeſt imperfection in point of perſpective of ſuch as are yet extant, we cannot help ſuſpecting the inferiority of the ancients in this reſpect. In perſpective, as in the chiaroſcuro,

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ſcuro, had good practice been common, ſome traces would have been diſcovered in the works of their loweſt artiſts.

And yet ſome general knowledge of the principles, and ſome degree of attention to the practice, of perſpective, cannot well be denied to the ancients. They were good mathematicians, they were excellent architects, and ſome of them are celebrated for their ſkill in ſcene-painting. Geminus the Rhodian, contemporary with Cicero, was the author of an expreſs treatiſe on perſpective; and Euclid, Heliodorus, Lariſſeus, Agatharcus, wrote alſo on the ſame ſubject. It is well known, beſides, that the ancients practiſed the art of painting in perſpective on walls in the ſame way that it is now done by the moderns; Pliny (Nat. Hiſt. lib. xxxv. c. 4.) ſays, that one of the walls of the theatre of Claudius Pulcher, repreſenting a roof covered with tiles, was finiſhed in ſo maſterly a manner, that the rooks, birds of no ſmall ſagacity, taking it for a real roof, attempted to light upon it. We are likewiſe told, that a dog was deceived to ſuch a degree, by certain ſteps in a perſpective of Dantos, that expecting to find a free paſſage, he made up to them in full ſpeed, and daſhed out his brains. But what is ſtill more, Vitruvius tells us in expreſs terms by whom and at what time this art was invented. It was firſt practiſed by Agatharcus, a contemporary of Æſchylus, in the theatre of Athens; and afterwards reduced to certain principles, and treated as a ſcience, by Anaxagoras and Democritus; thus faring like other arts which exiſted in practice before they appeared in theory.

Portrait painting ſeems to have been a principal employment of the firſt artiſt whom the ancients have to boaſt of, ſince Alexander is ſaid to have permitted no painter but Apelles, and no ſculptor but Phidias to take his likeneſs. Pliny particularizes ſeveral inſtances of Apelles as a portrait painter.

In the drawing and colouring of ſingle figures, to which the ancients paid peculiar attention, they muſt be allowed to be equal, if not ſuperior, to the moderns. That ſpirit and animation, eaſe and dignity, were *common* to the performances of ancient artiſts, the ancient ſtatues and paintings ſtill remaining moſt evidently evince; and as they poſſeſſed, therefore, all the requiſites to excel in portrait painting, a branch of the art at all times much in requeſt among them, there is good reaſon to infer, in favour of the ancients, at leaſt an equality with the moderns in this reſpect.

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On the whole, all the principal parts of the art, as purity of deſign, and beauty and expreſſion in the forms, were not only to be found in the ancient ſtatues, but were actually the foundation of excellence in modern painting; and hence we may conclude that their painters formed on the ſame models, and very often the ſame men who excelled in ſculpture, were not inferior in thoſe branches of the art. But with regard to the inferior parts, the allurement of colouring, the ingenuity of the claro-obſcuro, the ſplendor of compoſition, the art of grouping figures, and the nice *handling* of the pencil, the moderns are ſuperior to thoſe ancient painters who have moſt deſerved the notice of their contemporary writers. It is ſtill to be obſerved, however, that the progreſs of the arts among the ancients, from the principal parts to the more ſplendid, was ſomewhat ſimilar to that among the moderns; and as the painters of the firſt rank were more immediately the objects of criticiſm and delight to authors of genius, it is impoſſible at this diſtance of time to ſtate any accurate compariſon between the ancients and moderns in what may be termed the decay of the art. This is particularly the caſe with regard to colours, there being in ancient as well as in modern times two epochs; the one comprehending Polygnotus and his immediate ſucceſſors, and the other the painters both of Greece and Rome after the art began to decay. The colouring of Polygnotus was hard, and his manner had ſomething of wildneſs; but his deſign was in the higheſt ſtyle of perfection. In the ſucceeding ages the colouring was more varied, more brilliant, more harmonious, and the handling more agreeable; but the deſign was leſs elegant and exact. And the true connoiſſeurs continued to prefer the works of the ancient ſchool, in the ſame manner that the beſt writers in our times prefer the works of the Roman and Venetian maſters to the more brilliant pictures of their ſucceſſors. From this ſtatement of facts it is abundantly evident, that from the ancient authors we can form ſome compariſon between the beſt ancient and modern painters in thoſe things which are moſt excellent in the art; while in the inferior parts, from the ſilence of authors, and the loſs of paintings, we have no grounds upon which a compariſon can be accurately made.

PART I. Principles of the ART, and the Order of the Artiſt's STUDIES.

WE have joined theſe together, becauſe they are like cauſe and effect; and comprehend both on what parts in the execution of the art the painter is to employ his chief attention, and alſo the manner in which he is to employ it. We ſhall not therefore be confined to the dry and abſtract, and as it were unembodied principles, but connect them with the uſeful and agreeable branches of the art, in that order in which it appears to us they ſhould be ſtudied.

SECT I. *Of Anatomy.*

To aſk if the ſtudy of anatomy is requiſite to a painter, is the ſame thing as to aſk if, in order to learn any ſcience, a man muſt firſt make himſelf acquainted with the principles of it. It would be an uſeleſs waſte of time to cite, in confirmation of this truth, the authorities of the ancient maſters, and the moſt celebrated ſchools. A man, who is unacquainted with the form and conſtruction of the ſeveral bones which ſupport and govern the human frame, and does not know in what manner the muſcles moving theſe bones are fixed to them, can make nothing of what appears of them thro' the integuments with which they are covered; and which appearance is, however, the nobleſt object of the pencil. It is impoſſible for a painter to copy faithfully what he ſees, unleſs he thoroughly underſtand it. Let him employ ever ſo much time and ſtudy in the attempt,

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Anatomy. it cannot but be attended with many and great miſtakes: juſt as it muſt happen to a man, who undertakes to copy ſomething in a language which he does not underſtand; or to tranſlate into his own, what he has written in another, upon a ſubject with which he is not acquainted.

It ſeldom happens, that nothing more is required of a painter than to copy exactly an object which he has before him. In ſtill and very languid attitudes, in which every member is to appear motionleſs and dead, a living model may, no doubt, yield for a long time a faithful image, and prove an uſeful pattern to him. But in regard to geſtures any way ſudden, motions any way violent, or thoſe momentary attitudes which it is more frequently the painter's buſineſs to expreſs, the caſe is quite different. In theſe a living model can hold but an inſtant or two; it ſoon grows languid, and ſettles into a fixed attitude, which is produced by an inſtantaneous concourſe of the animal ſpirits. If, therefore, a painter poſſeſs not ſo thoroughly all the principles of anatomy, as to be at all times able to have immediate recourſe to them; if he know not the various manners in which the ſeveral parts of the human body play, according to their various poſitions; living models, far from proving an uſeful pattern to him, will rather tend to lead him aſtray, and make him loſe ſight of truth and nature, by exhibiting the very reverſe of what is required, or at leaſt exhibiting it in a very faint and imperfect manner. In living models, we often behold thoſe parts ſlow, which ſhould be quick; thoſe cold and torpid, which ſhould have the greateſt ſhare of life and ſpirit in them.

Nor is it, as ſome may be apt to imagine, merely to repreſent athletic and vigorous bodies, in which the parts are moſt bold and determined, that anatomy is requiſite: it ſhould be underſtood to repreſent perſons of the moſt delicate frame and condition, even women and children, whoſe members are ſmootheſt and roundeſt, though the parts made known by it are not to be ſtrongly expreſſed in ſuch object; juſt as logic is equally requiſite under the poliſhed inſinuations of the orator, and the rough arguments of the philoſopher.

But it is needleſs to ſpend much time in proving, that a painter ſhould be acquainted with anatomy; or in ſhowing, how far his acquaintance with it ſhould extend. For inſtance, it is unneceſſary for him to enter into the different ſyſtems of the nerves, blood-veſſels, bowels, and the like; parts which are removed from the ſight, and which therefore may be left to the ſurgeon and the phyſician, as being a guide in the operations of the former and in the preſcriptions of the latter. It is enough for the painter, to be acquainted with the ſkeleton; in other words, with the figure and connection of the bones, which are, in a manner, the pillars and props of a human body; the origin, progreſs, and ſhape of the muſcles which cover theſe bones; as alſo the different degrees in which nature has clothed the muſcles with fat, for this ſubſtance lies thicker upon them in ſome places than in others. Above all, he ſhould know in what manner the muſcles effect the various motions and geſtures of the body. A muſcle is compoſed of two tendinous and ſlender parts, one called the *head*, the other the *tail*, both terminating at the bones; and of an intermediate part, called the *belly*. The action of a muſcle conſiſts in an extraordinary ſwelling of this intermediate part, while the head remains at reſt, ſo as to Anatomy. bring the tail nearer the head, and conſequently the part to which the tail of the muſcle is fixed, nearer to that part into which the head is inſerted.

There are many motions to effect which ſeveral of the muſcles (for this reaſon called *co-operating muſcles*) muſt ſwell and operate together, while thoſe calculated to effect a contrary motion (and therefore called *antagoniſt muſcles*) appear ſoft and flaccid. Thus, for example, the biceps and the brachiæus internus labour when the arm is to be bent, and become more prominent than uſual; while the gemellus, the brachiæus externus, and the anconæus, whoſe office is to extend the arm, continue, as it were, flat and idle. The ſame happens reſpectively in all the other motions of the body. When the antagoniſt muſcles of any part operate at one and the ſame time, ſuch part becomes rigid and motionleſs. This action of the muſcle is called *tonic*.

Michael Angelo intended to give the public a complete treatiſe upon this ſubject; and it is no ſmall misfortune, that he never accompliſhed ſo uſeful a deſign. This great man, having obſerved, as we are told in his life by Condivi, that Albert Durer was deficient on the ſubject, as treating only of the various meaſures and forms of bodies, without ſaying a word of their attitudes and geſtures, though things of much greater importance, reſolved to compoſe a theory, founded upon his long practice, for the ſervice of future painters and ſtatuaries. And, certainly, no one could be better qualified to give anatomical precepts for that purpoſe, than he who, in competition with Da Vinci, deſigned that famous cartoon of naked bodies, which was ſtudied by Raphael himſelf, and afterwards obtained the approbation of the Vatican, the greateſt ſchool of the art we are now treating of.

The want of Michael Angelo's precepts may, in ſome meaſure, be ſupplied by other books written on the ſame ſubject by Moro, Ceſio, and Tortebat; and lately by Boucherdon, one of the moſt famous ſtatuaries in France. But nothing can be of equal ſervice to a young painter, with the leſſons of ſome able diſſector; under whom, in a few months, he may make himſelf maſter of every branch of anatomy which he need to be acquainted with. A courſe of oſteology is of no great length; and of the infinite number of muſcles diſcovered by curious myologiſts, there are not above 80 or 90, with which nature ſenſibly operates all thoſe motions which he can ever have occaſion to imitate or expreſs. Theſe, indeed, he ſhould cloſely ſtudy, theſe he ſhould carefully ſtore up in his memory, ſo as never to be at the leaſt loſs for their proper figure, ſituation, office, and motion.

But there is another thing, beſides the diſſection of dead bodies, by which a young painter may profit greatly; and that is anatomical caſts. Of theſe we have numbers by ſeveral authors; nay, ſome which paſs under the name of *Buonarroti* himſelf. But there is one in which, above all the reſt, the parts are moſt diſtinctly and lively expreſſed. This is the performance of Hercules Lelli, who has perhaps gone greater lengths in this kind of ſtudy than any other maſter. We have, beſides, by the ſame able hand, ſome caſts of particular parts of the human body, ſo curiouſly coloured for the uſe of young painters, as to repreſent theſe parts exactly as they appear on removing the integuments; and thus,

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Anatomy. by the difference in their colour as well as configuration, render the tendinous and the fleſhy parts, the belly and the extremities of every muſcle ſurpriſingly diſtinct; at the ſame time that, by the various direction of the fibres, the motion and play of theſe muſcles become very obvious; a work of the greateſt uſe, and never enough to be commended! Perhaps, indeed, it would be an improvement, to give the muſcles various tints; thoſe muſcles, eſpecially, which the pupil might be apt to miſtake for others. For example, though the maſtoides, the deltoides, the ſartorius, the faſcia lata, the gaſterocnemii, are, of themſelves, ſufficiently diſtinguiſhable, it is not ſo with regard to the muſcles of the arm and of the back, the right muſcles of the belly, and ſome others, which, either on account of the many parts into which they branch, or of their being interwoven one with another, do not ſo clearly and fairly preſent themſelves to the eye. But let the cauſe of confuſion to young beginners be what it will, it may be effectually removed, by giving, as already hinted, different colours to the different muſcles, and illumining anatomical figures; in the ſame manner that maps are coloured, in order to enable us readily to diſtinguiſh the ſeveral provinces of every kingdom, and the ſeveral dominions of every prince.

The better to underſtand the general effect, and remember the number, ſituation, and play of the muſcles, it will be proper to compare, now and then, the anatomical caſts, and even the dead body itſelf, with the living body covered with its fat and ſkin; and above all things, with the Greek ſtatues ſtill in being. It was the peculiar happineſs of the Greeks, to be able to characterize and expreſs the ſeveral parts of the human body much better than we can pretend to do; and this, on account of their particular application to the ſtudy of naked figures, eſpecially the fine living ones which they had continually before their eyes. It is well known, that the muſcles moſt uſed are likewiſe the moſt protuberant and conſpicuous; ſuch as, in thoſe who dance much, the muſcles of the legs; and in boatmen, the muſcles of the back and arms. But the bodies of the Grecian youth, by means of their conſtant exertion of them in all the gymnaſtic ſports, were ſo thoroughly exerciſed, as to ſupply the ſtatuary with much more perfect models than ours can pretend to be.

There are a great many exerciſes, which a young painter ſhould go through while engaged in the ſtudy of anatomy, in order to make himſelf more thoroughly maſter of that ſcience. For example: The thighs of any figure, a Laocoon for inſtance, being given, he ſhould add to them legs ſuitable to that ſtate in which the muſcles of the thighs are repreſented, that is, the muſcles which ſerve to bend and extend the legs, and to effectuate in them ſuch a preciſe poſition and no other. To the ſimple contour of an anatome, or a ſtatue, he ſhould add the parts included by it, and give it a ſyſtem of muſcles conformable to the quality of that particular contour; for every contour denotes ſome one certain attitude, motion, exertion, and no other. Exerciſes of this kind would ſoon eſtabliſh him in the moſt fundamental principles of painting, eſpecially if he had an opportunity of comparing his drawings with the ſtatue or caſt from which the parts given him to work upon were taken, and thereby diſcovering and correcting his miſtakes. This method is very like that uſed by thoſe who teach the Latin tongue; when, having given their ſcholars a paſſage of Livy or Cæſar already tranſlated into their mother-tongue, to tranſlate back into Latin, they make them compare their work with the original text. Perſpective.

Sect. II. *Of Perſpective.*

The ſtudy of perſpective ſhould go hand in hand with that of anatomy, as not leſs fundamental and neceſſary. In fact, the contour of an object drawn upon paper or canvas, repreſents nothing more than ſuch an interſection of the viſual rays ſent from the extremities of it to the eye, as would ariſe on a glaſs put in the place of the paper or canvas. Now, the ſituation of an object at the other ſide of a glaſs being given, the delineation of it on the glaſs itſelf depends entirely on the ſituation of the eye on this ſide of the glaſs; that is to ſay, on the rules of perſpective: a ſcience which, contrary to the opinion of moſt people, extends much farther than the painting of ſcenes, floors, and what generally goes under the name of *quadratura*. Perſpective, according to that great maſter da Vinci, is to be conſidered as the reins and rudder of painting. It teaches in what proportion the parts fly from, and leſſen upon the eye; how figures are to be marſhalled upon a plain ſurface, and fore-ſhortened. It contains, in ſhort, the whole rationale of deſign.

Such are the terms which the maſters beſt grounded in their profeſſion have employed to define and commend perſpective: ſo far were they from calling it a *fallacious art*, and an *inſidious guide*; as ſome amongſt the moderns have not bluſhed to do, inſiſting that it is to be followed no longer than it keeps the high road, or leads by eaſy and pleaſant paths. But theſe writers plainly ſhow, that they are equally ignorant of the nature of perſpective, which, founded as it is on geometrical principles, can never lead its votaries aſtray; and of the nature of their art, which, without the aſſiſtance of perſpective, cannot, in rigour, expect to make any progreſs, nay, not ſo much as to delineate a ſimple contour.

When a painter has formed a ſcene in his mind, and ſuppoſed, as it is cuſtomary, that the capital figures of this ſcene lie cloſe, or almoſt cloſe, to the back of his canvas, he is, in the next place, to fix upon ſome point on this ſide of the canvas, from which he would chooſe his piece ſhould be ſeen. But in chooſing this point, which is called the *point of ſight*, regard ſhould be had to its ſituation to the right or left of the middle of the canvas: but, above all things, to its diſtance and its height with reſpect to the lower edge of the canvas; which edge is called the *baſe line*, and is parallel with the horizontal line that paſſes through the eye. For by aſſuming the point of ſight, and conſequently the horizontal line, too low, the planes upon which the figures ſtand will appear a great deal too ſhallow; as, by aſſuming it too high, they will appear too ſteep, ſo as to render the piece far leſs light and airy than it ought to be. In like manner, if the point of ſight is taken at too great a diſtance from the canvas, the figures will not admit of degradation enough to be ſeen with ſufficient diſtinctneſs; and if taken too near it, the degra-

Perſpective.

dation will be too quick and precipitate to have an agreeable effect. Thus, then, it appears, that no ſmall attention is requiſite in the choice of this point.

When a picture is to be placed on high, the point of ſight ſhould be aſſumed low, and *vice verſa*; in order that the horizontal line of the picture may be, as near as poſſible, in the ſame horizontal plane with that of the ſpectator; for this diſpoſition has an amazing effect. When a picture is to be placed very high, as, amongſt many others, that of the Purification by Paolo Veroneſe, engraved by le Fevre, it will be proper to aſſume the point of ſight ſo low, that it may lie quite under the picture, no part of whoſe ground is, in that caſe, to be viſible; for, were the point of ſight to be taken above the picture, the horizontal ground of it would appear ſloping to the eye, and both figures and buildings as ready to tumble head foremoſt. It is true, indeed, that there is ſeldom any neceſſity for ſuch extraordinary exactneſs; and that, unleſs in ſome particular caſes, the point of ſight had better be rather high than low: the reaſon of which is, that, as we are more accuſtomed to behold people on the ſame plane with ourſelves, than either higher or lower, the figures of a piece muſt ſtrike us moſt when ſtanding on a plane nearly level with that upon which we ourſelves ſtand. To this it may be added, that by placing the eye low, and greatly ſhortening the plane, the heels of the back figures will ſeem to bear againſt the heads of the foremoſt, ſo as to render the diſtance between them far leſs perceptible than otherwiſe it would be.

The point of ſight being fixed upon according to the ſituation in which the picture is to be placed, the point of diſtance is next to be determined. In doing this, a painter ſhould carefully attend to three things: firſt, that the ſpectator may be able to take in, at one glance, the whole and every part of the compoſition; ſecondly, that he may ſee it diſtinctly; and, thirdly, that the degradation of the figures and other objects of the picture be ſufficiently ſenſible. It would take up too much time to lay down certain and preciſe rules for doing all this, conſidering the great variety in the ſizes and ſhapes of pictures; for which reaſon we muſt leave a great deal to the diſcretion of the painter.

But there is a point ſtill remaining, which will not admit of the leaſt latitude. This is, the delineation of the picture, when once the point of ſight has been fixed upon. The figures of a picture are to be conſidered as ſo many columns erected on different ſpots of the ſame plane; and the painter muſt not think of deſigning any thing, till he has laid down, in perſpective, all thoſe columns which are to enter his compoſition, with the moſt ſcrupulous exactneſs. By proceeding in this manner, he may not only be ſure of not committing any miſtake in the diminution of his figures according to their different diſtances, but may flatter himſelf with the thoughts of treading in the ſteps of the greateſt maſters. It is to the punctual obſervance of theſe laws, that we are to attribute the grand effect of ſome paintings by Carpazio and Mantegna, ſo careleſs in other reſpects; whereas a ſingle fault againſt them is often ſufficient entirely to ſpoil the works of a Guido, in ſpite of the ſublimity and beauty of his ſuperior ſtyle.

Now, as the demonſtration of the rules of perſpective depends on the doctrine of proportions, on the properties of ſimilar triangles, and on the interſection of planes, it will be proper to put an abridgement of Euclid into the hands of the young painter, that he may underſtand theſe rules fundamentally, and not ſtand confined to a blind practice of them: but, then, there is nothing in this author relative to the art of painting, which may not be eaſily acquired in a few months. For, as it would be of no uſe to a painter to launch out into the anatomical depths of a Monro or an Albinus, it would be equally ſuperfluous to perplex himſelf with the intricacies of the higher geometry with a Taylor, who has handled perſpective with that rich profoundneſs, which we cannot help thinking does a great deal more honour to a mathematician, than it can poſſibly bring advantage to a ſimple artiſt. Symmetry.

But though a much longer time were requiſite to become a perfect maſter of perſpective, a painter, ſurely, ought not to grudge it; as no time can be too long to acquire that knowledge, without which he cannot poſſibly expect to ſucceed. Nay, we may boldly affirm, that the ſhorteſt road in every art is that which leads through theory to practice. From theory ariſes that great facility, by means of which a man advances the quicker, in proportion as he is ſurer of not taking a wrong ſtep; whilſt thoſe, who are not grounded in the ſcience, labour on in perpetual doubt; obliged, as a certain author expreſſes it, to feel out their way with a pencil, juſt as the blind, with their ſticks, feel for the ſtreets and turnings, with which they are not acquainted.

As practice, therefore, ought in every thing to be built upon principle, the ſtudy of Optics, as far as it is requiſite to determine the degree in which objects are to be illuminated or ſhaded, ſhould proceed hand in hand with that of perſpective: And this, in order that the ſhades, caſt by figures upon the planes on which they ſtand, may fall properly, and be neither too ſtrong nor too light; in a word, that thoſe moſt beautiful effects of the chiaro-ſcuro may run no riſk of ever receiving the lie from truth, which ſooner or later diſcovers itſelf to every eye.

Sect. III. *Of Symmetry.*

The ſtudy of ſymmetry, it is obvious, ſhould immediately follow that of anatomy; for it would avail us little to be acquainted with the different parts of the human body, and their ſeveral offices, were we at the ſame time ignorant of the order and proportion of thoſe parts in regard to the whole in general, and to each other in particular. The Greek ſtatuaries diſtinguiſhed themſelves above all others, as much by the juſt ſymmetry of their members, as by their ſkill in anatomy; but Polycletes ſurpaſſed them all by a ſtatue, called the *Rule*, from which, as from a moſt accurate pattern, other artiſts might take meaſures for every part of the human body. *Plinii Nat. Hiſt.* lib. xxxiv. c. 8.

Theſe meaſures, to ſay nothing of the books which treat profeſſedly of them, may now be derived from the Apollo of Belvedere, the Laocoon, the Venus of Medicis, the Faunus, and particularly the Antinous, which laſt was the rule of the learned Pouſſin.

It is the general opinion of painters, that the ancients were not ſo happy in repreſenting the bodies of children, as they are allowed to have been in repreſenting thoſe of women and men; eſpecially thoſe of their gods; in which they excelled to ſuch a degree, that with theſe gods were often worſhipped the artiſts who had carved them. Yet

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Symmetry.

the Venus of Gnidus by Praxiteles was not more famous than her Cupid, on whoſe account alone people flocked to Theſpiæ §. To children, ſay they, the ancients knew not how to impart that ſoftneſs and effeminacy which Flammingo has ſince contrived to give them, by repreſenting their cheeks, hands, and feet, ſwelled, their heads large, and with ſcarce any belly. But ſuch critics ſeem to forget, that theſe firſt ſketches of nature very ſeldom come in the painter's way, and that this puny and delicate ſtate has not in its form even the leaſt glimmering of perfection. The ancients never undertook to repreſent children leſs than four or five years old; at which age the ſuperfluous humours of the body being in ſome meaſure digeſted, their members begin to aſſume ſuch a contour and proportion as may ſerve to point out what they are afterwards likely to be. This obſervation is confirmed by the children which we meet with in ancient baſſo-relievos and paintings: for they are all doing one thing or another; like thoſe moſt beautiful little Cupids in a picture at Venice, who are playing with the arms of Mars, and lifting up the ponderous ſword of that Deity; or that little urchin in the Danäe of Caracci, who empties a quiver of its arrows in order to fill it with the golden ſhower. Now, what can be a greater blunder in point of coſtume, than to attribute actions, which require ſome degree of ſtrength and judgement, to infancy, to that raw and tender age ſo totally unable to govern and ſupport itſelf?

§ *Cic. in Verrem, de ſignis. Strabo*, lib. ix. *Plin. Nat. Hiſt.* lib. xxxvi. c. 5.

Let a young painter conſider the Greek ſtatues ever ſo often, of whatever character or age they may be repreſented, it is impoſſible he ſhould ever conſider them without diſcovering new beauties in them. It is therefore impoſſible he ſhould copy them too often, according to that judicious motto placed by Maratti on his print called *The ſchool*. This truth was acknowledged by Rubens himſelf; for though, like one bred, as he was, in the foggy climate of the Low Countries, he generally painted from the life; in ſome of his works he copied the ancients; nay, he wrote a treatiſe on the excellency of the ancient ſtatues, and on the duty of a painter to ſtudy and imitate them. As to the ſatirical print, or rather paſquinade, of the great Titian, in which he has repreſented a parcel of young monkeys aping the group of Laocoon and his ſons; he intended nothing more by it than to laſh the dulneſs and poverty of thoſe artiſts, who cannot ſo much as draw a figure without having a ſtatue before them as a model.

In fact, reaſon requires, that an artiſt ſhould be ſo much maſter of his art, as ſeldom to ſtand in need of a pattern. To what other purpoſe is he to ſweat and toil from his infancy, and ſpend ſo many days and nights in ſtudying and copying the beſt models; eſpecially the fineſt faces of antiquity, which we are ſtill poſſeſſed of; ſuch as the two Niobes, mother and daughter; the Ariadne, the Alexander, the young Nero, the Silenus, the Nile: and likewiſe the fineſt figures; for inſtance, the Apollo, the Gladiator, the Venus, and others; all which (as was ſaid of Pietro Feſta), he ſhould have, as it were, perfectly by heart! With a ſtock of excellencies like theſe, treaſured up in his memory, he may one day hope to produce ſomething of his own without a model; form a right judgement of thoſe natural beauties which fall in his way; and, when occaſion offers, avail himſelf properly of them.

It is very injudicious to ſend boys to an academy to draw after naked figures, before they have imbibed a proper reliſh for beautiful proportions, and have been well-grounded in the true principles of ſymmetry. They ſhould firſt learn, by ſtudying the precious remains of antiquity, to improve upon life; and diſcern where a natural figure is faulty through ſtiffneſs in the members, or clumſineſs in the trunk, or in any other reſpect; ſo as to be able to correct the faulty part, and reduce it to its proper bounds. Painting, in this branch, is, like medicine, the art of taking away and adding. Symmetry.

It muſt not, however, be diſſembled, that the methods hitherto laid down are attended with ſome danger: for by too ſlaviſh an attention to ſtatues, the young painter may contract a hard and dry manner; and by ſtudying anatomies too ſervilely, a habit of repreſenting living bodies as ſtripped of their ſkin: for after all, there is nothing but what is natural, that, beſides a certain peculiar grace and livelineſs, poſſeſſes that ſimplicity, eaſe, and ſoftneſs, which is not to be expected in the works of art, or even in thoſe of nature when deprived of life. Pouſſin himſelf has now and then given into one of theſe extremes, and Michael Angelo very often into the other: but from this we can only infer, that even the greateſt men are not infallible. It is, in ſhort, to be conſidered as one inſtance, among a thouſand, of the ill uſe thoſe are wont to make of the beſt things, who do not know how to temper and qualify them properly with their contraries.

But no ſuch danger can ariſe to a young painter from confining himſelf for a long time to mere deſign, ſo as not to attempt colouring till he has made himſelf maſter of that branch. If, according to a great maſter *, colours in painting are in regard to the eye what numbers in poetry are in regard to the ear, ſo many charms to allure and captivate that ſenſe; may we not affirm, that deſign is in the ſame art what propriety of language is in writing, and a juſt utterance of ſounds in muſic? Whatever ſome people may think, a picture deſigned according to the rules of perſpective and the principles of anatomy, will ever be held in higher eſteem by good judges, than a picture ill deſigned, let it be ever ſo well coloured. Hannibal Caracci ſet ſo great a value upon the art of contour, that, according to ſome expreſſions of his which have reached us, he conſidered almoſt every thing elſe as nothing in compariſon with it. And this his judgement may be juſtified, by conſidering, that nature, though ſhe forms men of various colours and complexions, never operates in the motions contrary to the mechanical principles of anatomy, nor, in exhibiting theſe motions to the eye, againſt the geometrical laws of perſpective: a plain proof, that, in point of deſign, no miſtake is to be deemed trifling. Hence we are enabled to feel all the weight of thoſe words in which Michael Angelo, after he conſidered a picture drawn by a prince of the Venetian ſchool, addreſſed Vaſari! "What a pity it is," ſaid he, "that this man did not ſet out by ſtudying deſign!" As the energy of nature ſhines moſt in the ſmalleſt ſubjects, ſo the energy of art ſhines moſt in imitating them.

* Pouſſin, in his *Life* by Bellori.

Sect. IV. *Of Imitation.*

When you conſider art as the imitation of nature (ſays Mengs), it is not to be underſtood that nature, which is the object, is more perfect than art which

Imitation. imitates it. Nature, it is confeſſed, offers ſome views of which the imitation muſt for ever remain imperfect, as in the inſtance of the claro-obſcuro; but, on the other hand, in every thing relative to beauty of form, imitation may even ſurpaſs nature. Nature, in her productions, is ſubject to many accidents. Art, labouring on paſſive and obedient materials, renders perfect the objects of its creation, chooſes every thing in nature the moſt excellent, and collects the different parts and the different beauties of many individuals into one whole. It is ſeldom that we find in the ſame man greatneſs of ſoul and the due proportions of body, vigour, ſuppleneſs, firmneſs, and agility, joined together. Art conſtantly repreſents what is rarely or never to be met with in human nature; regularity in the outlines, grandeur in the forms, grace in the attitudes, beauty in the members, force in the breaſt, agility in the limbs, addreſs in the arms, frankneſs in the forehead, ſpirit in the eyes, and affability over the whole countenance. Let an artiſt give force and expreſſion to all the parts of his ſubject, let him vary this force and expreſſion as different circumſtances make it neceſſary, and he will ſoon perceive that art may ſurpaſs nature. But although this be granted, the artiſt is not to imagine that art is *actually* arrived at this ſupreme degree of perfection, and can proceed no farther. The moderns ſeem never to have perceived the tract pointed out by the ancient Greeks: for, ſince the revival of painting, the true and the agreeable, inſtead of the beautified, have been the objects of cultivation. Still, however, imitation is the firſt part of the art of painting, though not the moſt excellent or beautiful. It is a neceſſary ſtep in the progreſs which leads forward to greater perfection.

A painter ought attentively to conſider, compare together, and weigh in the balance of reaſon and truth, all the different ſtyles of the great maſters; but he ought likewiſe carefully to guard againſt too great a fondneſs for any one of them in particular that he may think proper to adopt; otherwiſe, to uſe the expreſſion of a firſt-rate maſter*, inſtead of the child, he would become the grand child of nature.

* *Da Vinci on Painting.*

Beſides, his imitation muſt be of generals, and not of particulars. Whatever a young painter's natural diſpoſition may be, whether to paint boldly and freely like Tintoret and Rubens, or to labour his works, like Titian or da Vinci, let him follow it. This kind of imitation is very commendable. It is thus that Dante, at the ſame time that he carefully avoided adopting the particular expreſſions of Virgil, endeavoured to ſeize his bold and free manner, and at laſt caught from him that elegance of ſtyle which has done him ſo much honour.

As to the reſt, nothing ſhould hinder an able maſter from making uſe now and then of any antique, or even modern figure, which he may find his account in employing. Sanzio, in a *St Paul at Lyſtra*, ſcrupled not to avail himſelf of an ancient ſacrifice in baſſo-relievo; nor did Buonarroti himſelf diſdain to uſe, in his paintings of the Sextine chapel, a figure taken from the famous cornelian which tradition tells us he wore on his finger, and which was lately in the poſſeſſion of the moſt Chriſtian king. Men like theſe avail themſelves of the productions of others in ſuch a manner as to make us apply to them, what La Bruyere ſaid of Deſpreaux, that one would imagine the thoughts of other men had been of his own creation.

In general, a painter ſhould have his eye conſtantly fixed on nature, that inexhauſtible and varied ſource of every kind of beauty; and ſhould ſtudy to imitate her in her moſt ſingular effects. As beauty, ſcattered over the whole univerſe, ſhines brighter in ſome objects than in others, he ſhould never be without his little book and crayon, in order to make drawings of every beautiful or uncommon object that may happen to preſent itſelf; and take ſketches of every fine building, every ſituation, every effect of light, every flight of clouds, every flow of drapery, every attitude, every expreſſion of the paſſions, that may happen to ſtrike him. He may afterwards employ theſe things as occaſions offer; and in the mean time will have the advantage of acquiring a grand taſte. Imitation.

It is by carefully ſtudying the beſt maſters, and imitating nature, that a painter arrives at the ſtyle of perfection which the Italians call *guſto grando*, the French *le beau ideal*, and the Engliſh *the great ſtyle*.

"A mind (ſays Sir Joſhua Reynolds), enriched by an aſſemblage of all the treaſures of ancient and modern art, will be more elevated and fruitful in reſources in proportion to the number of ideas which have been carefully collected and thoroughly digeſted.

"The addition of other men's judgement is ſo far from weakening, as is the opinion of many, our own, that it will faſhion and conſolidate thoſe ideas of excellence which lay in their birth feeble, ill-ſhaped, and confuſed; but which are finiſhed and put in order by the authority and practice of thoſe, whoſe works may be ſaid to have been conſecrated by having ſtood the teſt of ages.

"When we ſpeak of the habitual imitation and continued ſtudy of maſters, it is not to be underſtood that I adviſe any endeavour to copy the exact peculiar colour and complexion of another man's mind; the ſucceſs of ſuch an attempt muſt always be like his who imitates exactly the air, manner, and geſtures, of him whom he admires. His model may be excellent, but he himſelf will be ridiculous; and this ridicule ariſes not from his having imitated, but from his not having choſen the right mode of imitation.

"It is a neceſſary warrantable pride to diſdain to walk ſervilely behind any individual, however elevated his rank. The true and liberal ground of imitation is an open field, where, though he who precedes has had the advantage of ſtarting before you, yet it is enough to purſue his courſe: you need not tread in his footſteps; and you certainly have a right to outſtrip him if you can.

"Nor, whilſt I recommend ſtudying the art from artiſts, can I be ſuppoſed to mean that nature is to be neglected: I take this ſtudy in aid, and not in excluſion of the other. Nature is, and muſt be, the fountain, which alone is inexhauſtible; and from which all excellencies muſt originally flow.

"The great uſe of ſtudying our predeceſſors is to open the mind, to ſhorten our labour, and to give us the reſult of the ſelection made by thoſe great minds of what is grand or beautiful in nature: her rich ſtores are all ſpread out before us; but it is an art, and no eaſy art, to know how or what to chooſe, and how to attain and ſecure the object of our choice.

"Thus the higheſt beauty of form muſt be taken from nature; but it is an art of long deduction and great experience to know how to find it. I cannot

avoid

Colouring. avoid mentioning here an error which ſtudents are apt to fall into.

"He that is forming himſelf muſt look with great caution and warineſs on thoſe peculiarities or prominent parts which at firſt force themſelves on view, and are the marks, or what is commonly called the manner, by which that individual artiſt is diſtinguiſhed.

"Peculiar marks I hold to be generally, if not always, defects, however difficult it may be wholly to eſcape them.

"Peculiarities in the works of art are like thoſe in the human figure; it is by them that we are cognizable and diſtinguiſhed one from another; but they are always ſo many blemiſhes, which, however, both in the one caſe and in the other, ceaſe to appear deformities to thoſe who have them continually before their eyes. In the works of art, even the moſt enlightened mind, when warmed by beauties of the higheſt kind, will by degrees find a repugnance within him to acknowledge any defects; nay, his enthuſiaſm will carry him ſo far as to transform them into beauties and objects of imitation.

"It muſt be acknowledged, that a peculiarity of ſtyle, either from its novelty, or by ſeeming to proceed from a peculiar turn of mind, often eſcapes blame; on the contrary, it is ſometimes ſtriking and pleaſing; but it is vain labour to endeavour to imitate it, becauſe novelty and peculiarity being its only merit, when it ceaſes to be new, it ceaſes to have value.

"A manner, therefore, being a defect, and every painter, however excellent, having a manner, it ſeems to follow that all kinds of faults as well as beauties may be learned under the ſanction of the greateſt authority."

Sect. V. *Of Colouring.*

Colouring, though a ſubject greatly inferior to many others which the painter muſt ſtudy, is yet of ſufficient importance to employ a conſiderable ſhare of his attention; and to excel in it, he muſt be well acquainted with that part of optics which has the nature of light and colours for its object. Light, however ſimple and uncompounded it may appear, is nevertheleſs made up, as it were, of ſeveral diſtinct ſubſtances; and the number, and even doſe, of theſe ingredients, has been happily diſcovered by the moderns. Every undivided ray, let it be ever ſo fine, is a little bundle of red, orange, yellow, green, azure, indigo, and violet rays, which, while combined, are not to be diſtinguiſhed one from another, and form that kind of light called *white:* ſo that white is not a colour *per ſe*, as the learned Da Vinci † (ſo far, it ſeems, the precurſor of Newton) expreſsly affirms, but an aſſemblage of colours. Now theſe colours, which compoſe light, although immutable in themſelves, and endued with various qualities, are continually, however, ſeparating from each other in their reflection from and paſſage through other ſubſtances, and thus become manifeſt to the eye. Graſs, for example, reflects only green rays, or rather reflects green rays in greater number than it does thoſe of any other colour; one kind of wine tranſmits red rays, and another yellowiſh rays: and from this kind of ſeparation ariſes that variety of colours with which nature has diverſified her various productions. Man, too, has contrived to ſeparate the rays of light by making a portion of the ſun's beams paſs through a glaſs priſm; for after paſſing through it, they appear divided into ſeven pure and primitive colours, placed in ſucceſſion one by the other, like ſo many colours on a painter's pallet. Colouring.

† *Trattato della Pittura*, c. 14.

Now, though Titian, Corregio, and Vandyke, have been excellent colouriſts, without knowing any thing of theſe phyſical ſubtleties, that is no reaſon why others ſhould neglect them. For it cannot but be of great ſervice to a painter to be well acquainted with the nature of what he is to imitate, and of thoſe colours with which he is to give life and perfection to his deſigns; not to ſpeak of the pleaſure there is in being able to account truly and ſolidly for the various effects and appearances of light. From a due tempering, for example, and degrading, of the tints in a picture; from making colours partake of each other, according to the reflection of light from one object to another; there ariſes, in ſome meaſure, that ſublime harmony which may be conſidered as the true muſic of the eye. And this harmony has its foundation in the genuine principles of optics. Now this could not happen in the ſyſtem of thoſe philoſophers, who held, that colours did not originally exiſt in light, but were, on the contrary, nothing elſe than ſo many modifications which it underwent in being reflected from other ſubſtances, or in paſſing through them; thus ſubject to alterations without end, and every moment liable to periſh. Were that the caſe, bodies could no more receive any hues one from another, nor this body partake of the colour of that, than ſcarlet, for example, becauſe it has the power of changing into red all the rays of the ſun or ſky which immediately fall upon it, has the power of changing into red all the other rays reflected to it from a blue or any other colour in its neighbourhood. Whereas, allowing that colours are in their own nature immutable one into another, and that every body reflects, more or leſs, every ſort of coloured rays, though thoſe rays in the greateſt number which are of the colour it exhibits, there muſt neceſſarily ariſe, in colours placed near one another, certain particular hues or temperaments of colour: nay, this influence of one colour upon another may be ſo far traced, that three or four bodies of different colours, and likewiſe the intenſeneſs of the light falling upon each, being aſſigned, we may eaſily determine in what ſituations and how much they would tinge each other. We may thus, too, by the ſame principle of optics, account for ſeveral other things practiſed by painters; inſomuch that a perſon, who has carefully obſerved natural effects with an eye directed by ſolid learning, ſhall be able to form general rules, where another can only diſtinguiſh particular caſes.

But after all, the pictures of the beſt colouriſts are, it is univerally allowed, the books in which a young painter muſt chiefly look for the rules of colouring; that is, of that branch of painting which contributes ſo much to expreſs the beauty of objects, and is ſo requiſite to repreſent them as what they really are. Giorgio and Titian ſeem to have diſcovered circumſtances in nature which others have entirely overlooked; and the laſt in particular has been happy enough to expreſs them with a pencil as delicate as his eye was quick and piercing. In his works we behold that ſweetneſs of colouring which is produced by union, that beauty which is conſiſtent with truth; and all the inſenſible Colouring.

tranſmutations,

Colouring. transmutations, all the ſoft tranſitions, in a word, all the pleaſing modulations, of tints and colours. When a young painter has, by cloſe application, acquired from Titian, whom he can never ſufficiently dwell upon, that art which, of all painters, he has beſt contrived to hide, he would do well to turn to Baſſano and Paolo, on account of the beauty, boldneſs, and elegance of their touches. That richneſs, ſoftneſs, and freſhneſs of colouring for which the Lombard ſchool is ſo juſtly cried up, may likewiſe be of great ſervice to him. Nor will he reap leſs benefit by ſtudying the principles and practice of the Flemiſh ſchool; which, chiefly by means of her varniſhes, has contrived to give a moſt enchanting luſtre and tranſparency to her colours.

But whatever pictures a young painter may chooſe to ſtudy the art of colouring upon, he muſt take great care that they be well preſerved. There are very few pieces which have not ſuffered more or leſs by the length, not to ſay the injuries, of time; and perhaps that precious patina, which years alone can impart to paintings, is in ſome meaſure akin to that other kind which ages alone impart to medals; inaſmuch as, by giving teſtimony to their antiquity, it renders them proportionably beautiful in the ſuperſtitious eyes of the learned. It muſt indeed be allowed, that if, on the one hand, this patina beſtows, as it really does, an extraordinary degree of harmony upon the colours of a picture, and deſtroys, or at leaſt greatly leſſens, their original rawneſs, it, on the other hand, equally impairs the freſhneſs and life of them. A piece ſeen many years after it has been painted, appears much as it would do, immediately after painting, behind a dull glaſs. It is no idle opinion, that Paolo Veroneſe, attentive above all things to the beauty of his colours, and what is called *ſtrepito*, left entirely to time the care of harmonizing them perfectly, and (as we may ſay) mellowing them. But moſt of the old maſters took that taſk upon themſelves; and never expoſed their works to the eyes of the public, until they had ripened and finiſhed them with their own hands. And who can ſay whether the *Chriſt* of Moneta, or the *Nativity* of Baſſano, have been more improved or injured (if we may ſo ſpeak) by the touchings and retouchings of time, in the courſe of more than two centuries? It is indeed impoſſible to be determined. But the ſtudious pupil may make himſelf ample amends for any injuries which his originals may have received from the hands of time, by turning to truth, and to Nature which never grows old, but conſtantly retains its primitive flower of youth, and was itſelf the model of the models before him. As ſoon, therefore, as a young painter has laid a proper foundation for good colouring, by ſtudying the beſt maſters, he ſhould turn all his thoughts to truth and nature. And it would perhaps be well worth while to have, in the academies of painting, models for colouring as well as deſigning; that as from the one the pupils learn to give their due proportion to the ſeveral members and muſcles, they may learn from the other to make their carnations rich and warm, and faithfully copy the different local hues which appear quite diſtinct in the different parts of a fine body. To illuſtrate ſtill farther the uſe of ſuch a model, let us ſuppoſe it placed in different lights: now in that of the ſun, now in that of the ſky, and now again in that of a lamp or candle; one time placed in the ſhade, and another in a reflected light. Hence the pupil may learn all the different effects of the complection in different circumſtances, whether the livid, the lucid, or tranſparent; and, above all, that variety of tints and half tints, occaſioned in the colour of the ſkin by the epidermis having the bones immediately under it in ſome places, and in others a greater or leſs number of blood-veſſels or quantity of fat. An artiſt who had long ſtudied ſuch a model would run no riſk of degrading the beauties of nature by any particularity of ſtyle, or of giving into that prepoſterous fulneſs and floridneſs of colour which is at preſent ſo much the taſte. He would not feed his figures with roſes, as an ancient painter of Greece ſhrewdly expreſſed it, but with good beef; a difference which the learned eye of a modern writer could perceive between the colouring of Barocci and that of Titian. To practiſe in that manner, is, according to a great maſter, no better than inuring one's ſelf to the commiſſion of blunders. What ſtatues are in deſign, nature is in colouring; the fountain-head of that perfection to which every artiſt, ambitious to excel, ſhould conſtantly aſpire: and accordingly the Flemiſh painters, in conſequence of their aiming ſolely to copy nature, are in colouring as excellent as they are wont to be aukward in deſigning. The beſt model for the tone of colours and the degradation of ſhades is furniſhed by means of the *camera-obſcura*. See DIOPTRICS, Sect. vi. and ix.

Webb. dial. 5.

SECT. VI. *Of Drapery.*

Drapery. DRAPERY is one of the moſt important branches of the whole art, and accordingly demands the greateſt attention and ſtudy. It ſeldom happens that a painter has nothing but naked figures to repreſent; nay, his ſubjects generally conſiſt of figures clothed from head to foot. Now the flowing of the folds in every garment depends chiefly upon the relief of the parts that lie under it. A certain author, we forget his name, obſerves, that as the inequalities of a ſurface are diſcoverable by the inequalities in the water that runs over it, ſo the poſture and ſhape of the members muſt be diſcernible by the folds of the garment that covers them. Thoſe idle windings and gatherings, with which ſome painters have affected to cover their figures, make the clothes made up of them look as if the body had fled from under them, and left nothing in its place but a heap of empty bubbles, fit emblems of the brain that conceived them. As from the trunk of a tree there iſſue here and there boughs of various forms, ſo from one miſtreſs fold there always flow many leſſer ones: and as it is on the quality of the tree that the elegance, compactneſs, or openneſs of its branches chiefly depends; it is, in like manner, by the quality of the ſtuff of which a garment is made, that the number, order, and ſize of its folds muſt be determined. To ſum up all in two words, the drapery ought to be natural and eaſy, ſo as to ſhow what ſtuff it is, and what parts it covers. It ought, as a certain author expreſſes it, to cover the body, as it were merely to ſhow it.

It was formerly the cuſtom with ſome of our maſters to draw all their figures naked, and then drape them; from the ſame principle that they firſt drew the ſkeletons of their figures, and afterwards covered them with muſcles.

Drapery. muſcles. And it was by proceeding in this manner that they attained to ſuch a degree of truth in expreſſing the folds of their drapery, and the joints and direction of the principal members that lay under it, ſo as to exhibit in a moſt ſtriking manner the attitude of the perſon to whom they belonged. That the ancient ſculptors clothed their ſtatues with equal truth and grace, appears from many of them that are ſtill in being; particularly a Flora lately dug up in Rome, whoſe drapery is executed with ſo much judgement, and in ſo grand and rich a ſtyle, that it may vie with the fineſt of their naked ſtatues, even with the Venus of Medicis. The ſtatues of the ancients had ſo much beauty when naked, that they retained a great deal when clothed. But here it muſt be conſidered, that it was uſual with them to ſuppoſe their originals clothed with wet garments, and of an extreme fineneſs and delicacy, that, by lying cloſe to the parts, and in a manner clinging to them, they might the better ſhow what theſe parts were. For this reaſon a painter is not to confine himſelf to the ſtudy of the ancient ſtatues, leſt he ſhould contract a dry ſtyle, and even fall into the ſame faults with ſome great maſters who, accuſtomed to drape with ſuch light ſtuffs as ſit cloſe to the body, have afterwards made the coarſeſt lie in the ſame manner, ſo as plainly to exhibit the muſcles underneath them. It is therefore proper to ſtudy nature herſelf, and thoſe modern maſters who have come neareſt to her in this branch; ſuch as Paolo Veroneſe, Andrea del Sarto, Rubens, and above all, Guido Reni. The flow of their drapery is ſoft and gentle; and the gatherings and plaits are ſo contrived, as not only not to hide the body, but to add grace and dignity to it. Their gold, ſilk, and woollen ſtuffs, are ſo diſtinguiſhable one from another, by the quality of their ſeveral luſtres, and the peculiar light and ſhade belonging to each, but above all by the form and flow of their folds, that the age and ſex of their figures are hardly more diſcoverable by their faces. Albert Durer is another great maſter in this branch, inſomuch that Guido himſelf was not aſhamed to ſtudy him. There are ſtill extant ſeveral drawings made with the pen by this great man, in which he has copied whole figures from Albert, and ſcrupulouſly retained the flow of his drapery as far as his own peculiar ſtyle, leſs harſh and ſharp, but more eaſy and graceful, would allow. It may be ſaid that he made the ſame uſe of Albert that our modern writers ought to make of the beſt authors of the 13th century.

To drape a figure well, it is neceſſary that the folds be large and few in number; becauſe large folds produce great maſſes of light and ſhadow, while ſmall ones multiply the objects of view and diſtract the attention. But if the character of the drapery or kind of ſtuff require ſmall folds, they ſhould at leaſt be diſtributed in groups, in ſuch a manner that a great number of ſmall folds ſhall be ſubordinate to an equal maſs formed by a principal fold.

It is alſo proper to obſerve, that the colour of the drapery contributes to the harmony of the whole, and produces effects which the claro obſcuro cannot do alone. At the ſame time, the principles of the claro-obſcuro ſhould preſide over, or at leaſt regulate, the art of drapery. If the folds of the ſtuff which cover the members expoſed to the light are too ſtrongly ſhaded, they will appear to enter into the members, and cut them. Drapery.

Drapery contributes to the life, to the character, to the expreſſion of the figures, provided all the movements of the folds announce the lively or more tranquil movement of thoſe figures. The colour, and the kind of ſtuff, concur alſo to promote the general expreſſion; brilliant or fine drapery cannot be properly introduced in a mournful ſubject, nor the oppoſite in a gay one.

The drapery muſt alſo agree with the age and character of the figures: And if nature in any inſtance is found to contradict theſe principles, it is becauſe they relate to the ideal of the art; and it is this ideal which carries it to the greateſt perfection.

Great attention is alſo neceſſary to the ſituation in which the figures are placed, and the actions about which they are employed. If they are in the act of aſcending, a column of air weighs down the drapery; if, on the contrary, they are deſcending, the drapery is ſupported and ſpread out. The folds placed on every member, and the general play of the drapery, ſhould indicate whether the figure is in action or about to be ſo; whether action be beginning or ending; and whether it be ſlow, or quick, or violent. All this is agreeable to nature; but it alſo partakes of the ideal, ſince nature never can be copied in ſuch fluctuating ſituations. The practice of the Roman ſchools, firſt to draw after nature, and then to paint after the drawing, cannot be adopted by colouriſts; becauſe nature, according to the kind of the ſtuffs, produces tones and lights which give more perfection and truth to the work. Meanwhile Raphael, who followed this practice, enjoys the firſt reputation for giving play to his drapery, and diſpoſing the folds in the beſt order. In this part he has even attained the height of ideal beauty. He is the greateſt painter of drapery, as the Venetians are the greateſt in painting ſtuffs.

Raphael, ſays Mengs, imitated at firſt his maſter Perugin's manner of drapery; and he brought this manner to perfection, by ſtudying the works of Maſaccio and of Bartholomew: but he departed entirely from the taſte of the ſchool in which he was educated when he had ſeen the works of the ancients. It was the baſſo-relievo of antiquity which pointed out to him the true flowing of drapery, and he was not backward to introduce it. He diſcovered, by attending to the principles of the ancients, that the naked is the principal part; that drapery is to be regarded altogether as an acceſſory, and that it is intended to cover, not to conceal; that it is employed from neceſſity, not caprice; that of conſequence the clothes ſhould not be ſo narrow as to conſtrain the members, nor ſo ample as to embarraſs them; but that the artiſt ſhould adapt them to the ſize and attitude of the figures intended to wear them.

He underſtood that the great folds ſhould be placed at the large places of the body; and where the nature of the drapery required ſmall folds, that it was neceſſary to give them a projection, which indicates a ſubordination to the principal parts.

He made his ample draperies without uſeleſs folds, and with bendings at the articulations. It was the form of the naked figure which pointed out to him the form

of

Landſcape and Architecture.

of his folds, and on the great muſcles he formed great maſſes. When any part required to be foreſhortened, he covered it with the ſame number of folds as if it had been ſtraight; but then he crowded them in proportion to the foreſhortening.

He frequently diſcovered the border of his drapery, to ſhow that his figures were not dreſſed in a ſimple ſack. The form of the principal parts, and the ſpecific weight of the air, were always the cauſes of his folds. It was eaſy to diſcover in his works, by the folds of his drapery, the attitude of the figure previous to the one in which it was placed; and whether, for example, the arm was extended or otherwiſe, immediately before the action. This was an expreſſion which he had carefully ſtudied on all occaſions, becauſe he found it in nature.

When the drapery was to cover the leg or arm but half, or in an imperfect manner, he made it cut obliquely the member which was partly to be covered. His folds were of a triangular form. The reaſon of this form is in nature: for all drapery has a tendency to enlarge itſelf and be extended; and as at the ſame time its own weight obliges it to fall back on itſelf, it is naturally formed into triangles.

He knew perfectly that the movements of the body and of its members are the cauſes of the actual ſituation of drapery, and of the formation of its folds. All his practice is nothing elſe but the unfolding and demonſtrating of this theory; and drapery executed in any other manner muſt be in a falſe and vicious taſte.

Sect. VII. *Of Landſcape and Architecture.*

When our young painter has made a ſufficient progreſs in thoſe principal branches of his art, the deſigning, perſpective, colouring, and drapery of human figures, he ſhould turn his thoughts to landſcape and architecture: for, by ſtudying them, he will render himſelf univerſal, and qualified to undertake any ſubject; ſo as not to reſemble certain literati, who, though great maſters in ſome articles, are mere children in every thing elſe.

The moſt eminent landſcape painters are Pouſſin, Loreneſe, and Titian.

Pouſſin was remarkable for his great diligence. His pieces are quite exotic and uncommon; being ſet off with buildings in a beautiful but ſingular ſtyle; and with learned epiſodes, ſuch as poets reciting their verſes to the woods, and youths exerciſing themſelves in the ſeveral gymnaſtic games of antiquity; by which it plainly appears, that he was more indebted for his ſubjects to the deſcriptions of Pauſanias than to nature and truth.

Loreneſe applied himſelf chiefly to expreſs the various phenomena of light, eſpecially thoſe perceivable in the heavens. And thanks to the happy climate of Rome, where he ſtudied and exerciſed his talents, he has left us the brighteſt ſkies, and the richeſt and moſt glorioufly cloud-tipt horizons, that can be well conceived. Nay, the ſun himſelf, which, like the Almighty, can be repreſented merely by his effects, has ſcarcely eſcaped his daring and ambitious pencil.

Titian, the great confidant of nature, is the Homer of landſcape. His ſcenes have ſo much truth, ſo much variety, and ſuch a bloom in them, that it is impoſſible to behold them, without wiſhing, as if they were real, to make an excurſion into them. And perhaps the fineſt landſcape that ever iſſued from mortal hands, is the back ground of his *Martyrdom of St Peter;* where, by the difference between the bodies and the leaves of his trees and the diſpoſition of their branches, one immediately diſcovers the difference between the trees themſelves; where the different ſoils are ſo well expreſſed, and ſo exquiſitely clothed with their proper plants, that a botaniſt has much ado to keep his hands from them. See Part II. ſect. ii.

Paolo Veroneſe is in architecture what Titian is in landſcape. To excel in landſcape, we muſt, above all things, ſtudy nature. To excel in architecture, we muſt chiefly regard the fineſt works of art; ſuch as the fronts of ancient edifices, and the fabrics of thoſe moderns who have beſt ſtudied and beſt copied antiquity. Next to Brunelleſchi and Alberti, who were the firſt revivers of architecture, came Bramante, Giulio Romano, Sanſovino, Sanmicheli, and laſtly Palladio, whoſe works the young painter ſhould above all the reſt diligently ſtudy and imprint deeply on his mind. Nor is Vignola to be forgotten; for ſome think he was a more ſcrupulous copier of antiquity, and more exact, than Palladio himſelf, inſomuch that moſt people conſider him as the firſt architect among the moderns. For our part, to ſpeak of him, not as fame, but as truth ſeems to require, we cannot help thinking, that rather than break through the generality of the rules contrived by him to facilitate practice, he has in ſome inſtances deviated from the moſt beautiful proportions of the antique, and is rather barren in the diſtribution and diſpoſition of certain members. Moreover, the extraordinary height of his pedeſtals and cornices hinders the column from ſhowing in the orders deſigned and employed by him, as it does in thoſe of Palladio. Amongſt that great variety of proportions to be met with in ancient ruins, Palladio has been extremely happy in chooſing the beſt. His profiles are well contraſted, yet eaſy. All the parts of his buildings hang well together. Grandeur, elegance, and beauty, walk hand in hand in them. In ſhort, the very blemiſhes of Palladio, who was no ſlave to conveniency, and ſometimes perhaps was too profuſe in his decorations, are pictureſque. And we may reaſonably believe, that it was by following ſo great a maſter, whoſe works he had continually before his eyes, that Paolo Veroneſe formed that fine and maſterly taſte which enabled him to embelliſh his compoſitions with ſuch beautiful ſtructures.

The ſtudy of architecture cannot fail, in another reſpect, of being very uſeful to the young painter, inaſmuch as it will bring him acquainted with the form of the temples, thermæ, baſilics, theatres, and other buildings of the Greeks and Romans. Beſides, from the baſſo-relievos with which it was cuſtomary to adorn theſe buildings, he may gather, with equal delight and profit, the nature of their ſacrifices, arms, military enſigns, and dreſs. The ſtudy of landſcape, too, will render familiar to him the form of the various plants peculiar to each ſoil and climate, and ſuch other things as ſerve to characteriſe the different regions of the earth. Thus by degrees he will learn what we call *coſtume*, one of the chief requiſites in a painter; ſince by means of it he may expreſs with great preciſion the time and place in which his ſcenes are laid.

Expreſſion of the Paſſions.

Sect. VIII. *Of the Expreſſion of the Paſſions.*

That language which above all others a painter ſhould carefully endeavour to learn, and from nature herſelf, is the language of the paſſions. Without it the fineſt works muſt appear lifeleſs and inanimate. It is not enough for a painter to be able to delineate the moſt exquiſite forms, give them the moſt graceful attitudes, and compoſe them well together; it is not enough to dreſs them out with propriety, and in the moſt beautiful colours; it is not enough, in fine, by the powerful magic of light and ſhade, to make the canvas vaniſh. No; he muſt likewiſe know how to clothe his figures with grief, with joy, with fear, with anger; he muſt, in ſome ſort, write on their faces what they think and what they feel; he muſt give them life and ſpeech. It is indeed in this branch that painting truly ſoars, and in a manner riſes ſuperior to itſelf; it is in this branch ſhe makes the ſpectator apprehend much more than what ſhe expreſſes.

The means employed in her imitations by painting, are the circumſcription of terms, the chiaro-ſcuro, and colours; all which appear ſolely calculated to ſtrike the viſual faculty. Notwithſtanding which, ſhe contrives to repreſent hard and ſoft, rough and ſmooth ſurfaces, which are objects of the touch: and this by means of certain tints, and a certain chiaro-ſcuro, which has a different look in marble, in the bark of trees, in downy and delicate ſubſtances. Nay, ſhe contrives to expreſs ſound and motion, by means of light and ſhade, and certain particular configurations. In ſome landſcapes of Diderich, we almoſt hear the water murmur, and ſee it tremble along the ſides of the river and of the boats upon it. In the *Battle* of Burgogne, we are really apt to fancy that the trumpet ſounds; and we ſee the horſe, who has thrown his rider, ſcamper along the plain. But what is ſtill more wonderful, painting, in virtue of her various colours and certain particular geſtures, expreſſes even the ſentiments and moſt hidden affections of the ſoul, and renders her viſible, ſo as to make the eye not only touch and hear, but even kindle into paſſion and reaſon.

Many have written, and amongſt the reſt the famous Le Brun, on the various changes that, according to the various paſſions, happen in the muſcles of the face, which is, as it were, the dumb tongue of the ſoul. They obſerve, for example, that in fits of anger the face reddens, the muſcles of the lips puff out, the eyes ſparkle; and that, on the contrary, in fits of melancholy, the eyes grow motionleſs and dead, the face pale, and the lips ſink in. It may be of ſervice to a painter to read theſe and ſuch other remarks; but it will be of infinitely more ſervice to ſtudy them in nature itſelf, from which they have been borrowed, and which exhibits them in that lively manner which neither tongue nor pen can expreſs.

Upon Le Brun's Treatiſe on the Paſſions, we have the following juſt, though ſevere, criticiſm by Winckleman. "Expreſſion, though precarious in its nature (ſays he), has been reduced into a ſyſtem, in a Treatiſe on the Paſſions by Charles le Brun, a work generally put into the hands of young artiſts. The plates which accompany this treatiſe do not only give to the face the affections of the ſoul in too high a tone, but there are many of the heads in which the paſſions are repreſented in an outrageous manner. He appears to give inſtructions in expreſſion, as Diogenes gave examples of morality: I act like muſicians, ſaid that cynic, who give a high tone, in order to indicate a true one. But the fervour of youth has naturally more inclination to ſeize the extreme than the middle; and hence it is difficult for the young artiſt, in copying after Le Brun, to ſeize the true tone. Youth in general may be ſuppoſed to have that regard for the calm and moderate in the arts, which they have for the precepts of wiſdom and virtue."

Expreſſion of the Paſſions.

Other French writers have given inſtructions reſpecting the expreſſion of the paſſions, equally exceptionable with thoſe of Le Brun. All of them whom we have conſulted make ſo many diviſions and ſubdiviſions of paſſions, that a philoſopher cannot follow them in metaphyſical theory, nor a painter exhibit their effects upon canvas. Nature therefore muſt be his guide, particularly in treating thoſe very minute and almoſt imperceptible differences, by which, however, things very different from each other are often expreſſed. This is particularly the caſe with regard to the paſſions of laughing and crying; as in theſe, however contrary, the muſcles of the face operate nearly in the ſame manner. As the famous Pietro de Cortona was one day finiſhing the face of a crying child in a repreſentation of the Iron Age, with which he was adorning the floor called the *Hot-bath* in the royal palace of Pitti, Ferdinand II. who happened to be looking over him for his amuſement, could not forbear expreſſing his approbation, by crying out, "Oh how well that child cries!" To whom the artiſt,—"Has your majeſty a mind to ſee how eaſy it is to make children laugh? Behold, I'll prove it in an inſtant:" And taking up his pencil, by giving the contour of the mouth a concave turn downwards inſtead of the convex upwards which it before had, and with little or no alteration in any other part of the face, he made the child, who a little before ſeemed ready to burſt its heart with crying, appear in equal danger of burſting its ſides with immoderate laughter; and then, by reſtoring the altered features to their former poſition, he ſoon ſet the child a-crying again."

The different expreſſions of laughter and weeping are thus deſcribed by Le Brun. "The movements of laughter are expreſſed by the eye-brows elevated towards the middle of the eye, and lowered towards the ſides of the noſe: the eyes, almoſt ſhut, appear ſometimes moiſtened with tears: the mouth, a little open, allows the teeth to be ſeen: the extremities of the mouth drawn back, make a dimple in the cheeks, which appear to be ſwelled: the noſtrils are open: and the face becomes red. The changes which weeping occaſions are equally viſible. The eye-brow is lowered on the middle of the forehead; the eyes are almoſt ſhut, moiſtened, and lowered towards the ſides of the cheeks: the noſtrils are ſwelled, and the veins of the forehead very apparent: the mouth ſhut, by the lowneſs of its ſides, occaſions wrinkles in the cheeks; the under lip is turned down, and preſſes at the ſame time the upper lip: the whole countenance is wrinkled and becomes red; eſpecially the eye-brows, the eyes, the noſe, and the cheeks."

Lectures of Philip Baldinucci in the Academy of La Cruſca il Lyſtrato, &c.

According to Leonardo da Vinci, the beſt maſters

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that a painter can have recourſe to in this branch are thoſe dumb men who have found out the method of expreſſing their ſentiments by the motion of their hands, eyes, eye-brows, and in ſhort every other part of the body. If this advice be at all proper, ſuch geſtures muſt be imitated with great ſobriety and moderation, leſt they ſhould appear too ſtrong and exaggerated; and the piece ſhould ſhow nothing but pantomimes, when ſpeaking figures alone are to be exhibited; and ſo become theatrical and ſecond-hand, or, at beſt, look like the copy of a theatrical and ſecond-hand nature.

The artiſt will reap greater benefit from ſtudying ſuch fine ancient heads as thoſe of Mithridates, Seneca, Alexander dying, Cleopatra, Niobe, &c. and above all, from attentively obſerving ſuch movements of nature as we daily meet with in the world. But let him chiefly conſult his looking-glaſs, and ſtudy after his own face, what, in certain expreſſions, are the muſcles, the lineaments, the tints, and the accidental circumſtances which characteriſe the ſituation of the ſoul. It rarely happens that a model, which is affected with no ſentiment, preſents that to us which we ourſelves feel, and which we are capable of expreſſing when we are our own model. Puget executed the legs of his Milo after his own; and many ingenious artiſts have had recourſe to a ſimilar expedient. In ſhort, to be affected ourſelves is the true ſecret of affecting the ſpectator.

We muſt not neglect, at the ſame time, to ſecure the fleeting characters which nature preſents to us on a thouſand occaſions. We muſt diſtruſt our memory, and all the reſources which are not eaſily employed when we happen to ſtand in need of them. It is neceſſary to watch the circumſtances from which we can derive any uſeful hint; to ſeize them when they preſent themſelves; and to be careful never to loſe, by an irreparable negligence, the fruit of a happy incident.

Let us alſo endeavour to poſſeſs the feeling of what we are to expreſs: whether it be by forming the image of a thing abſent as if it were preſent, or by being affected with the lively idea of a ſituation which we have either experienced, or with which we have ſeen another perſon remarkably affected. We muſt never forget, that all the terrible or agreeable, the violent or ſlight movements, are to be treated in a natural manner, and bear a relation to the age, condition, ſex, and dignity of the perſon. Thoſe gradations, which art varies according to the nature of the ſituation, and the character of men, compoſe the principal ingredients of diſcernment, knowledge, and taſte. They have been the objects of attention and inquiry to the moſt eminent painters of every age; and they were of the laſt importance in aſſiſting them to arrive at that degree of excellence to which they have carried expreſſion.

We are told ſtrange things of the ancient painters of Greece in regard to expreſſion; eſpecially of Ariſtides; who, in a picture of his, repreſenting a woman wounded to death at a ſiege, with a child crawling to her breaſt, makes her appear afraid, leſt the child, when ſhe was dead, ſhould, for want of milk, ſuck her blood. *A Medea murdering her children*, by Timomachus, was likewiſe much cried up, as the ingenious artiſt contrived to expreſs, at once, in her countenance, both the fury that hurried her on to the commiſſion of ſo great a crime, and the tenderneſs of a mother that ſeemed to withhold her from it. Rubens attempted to expreſs ſuch a double effect in the face of Mary of Medicis, ſtill in pain from her paſt labour, and at the ſame time full of joy at the birth of a Dauphin. And in the countenance of Sancta Polonia, painted by Ticpolo for St Anthony's church at Padua, one may clearly read a mixture of pain from the wound given her by the executioner, and of pleaſure from the proſpect of paradiſe opened to her by it.

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Few, to ſay the truth, are the examples of ſtrong expreſſion afforded by the Venetian, Flemiſh, or Lombard ſchools. Deprived of that great happineſs, the happineſs of being able to contemplate, at leiſure, the works of the ancients, the pureſt ſources of perfection in point of deſign, expreſſion, and character; and having nothing but nature conſtantly before their eyes; they made ſtrength of colouring, blooming complections, and the grand effects of the chiaro-obſcuro, their principal ſtudy: they aimed more at charming the ſenſes than at captivating the underſtanding. The Venetians, in particular, ſeem to have placed their whole glory in ſetting off their pieces with all that rich variety of perſonages and dreſs, which their capital is continually receiving by means of its extenſive commerce, and which attracts ſo much the eyes of all thoſe who viſit it. It is much to be doubted, if, in all the pictures of Paolo Veroneſe, there is to be found a bold and judicious expreſſion, or one of thoſe attitudes which, as Petrarch expreſſes it, ſpeak without words; unleſs, perhaps, it be that remarkable one in his *Marriage Feaſt of Cana of Galilee*. At one end of the table, and directly oppoſite to the bridegroom, whoſe eyes are fixed upon her, there appears a woman in red, holding up to him the ſkirt of her garment; as much as to ſay, we may ſuppoſe, that the wine miraculouſly produced was exactly of the colour with the ſtuff on her back. And in fact it is red wine we ſee in the cups and pitchers. But all this while the faces and attitudes of moſt of the company betray not the leaſt ſign of wonder at ſo extraordinary a miracle. They all, in a manner, appear intent upon nothing but eating, drinking, and making merry. Such, in general, is the ſtyle of the Venetian ſchool. The Florentine, over which Michael Angelo preſided, above all things curious of deſign, was moſt minutely and ſcrupulouſly exact in point of anatomy. On this ſhe ſet her heart, and took ſingular pleaſure in diſplaying it. Not only elegance of form, and nobleneſs of invention, but likewiſe ſtrength of expreſſion, triumph in the Roman ſchool, nurſed as it were amongſt the works of the Greeks, and in the boſom of a city which had once been the ſeminary of learning and politeneſs. Here it was that Domenichino and Pouſſin, both great maſters of expreſſion, refined themſelves, as appears more particularly by the *St Jerome* of the one, and the *Death of Germanicus*, and the *Slaughter of the Innocents*, by the other. Here it was that Raphael aroſe, the ſovereign maſter of them all. One would imagine, that pictures, which are generally conſidered as the books of the ignorant, and of the ignorant only, he had undertaken to make the inſtructors even of the learned. One would imagine, that he intended, in ſome meaſure, to juſtify Quintilian *, who affirms, that painting has more power over us than all the arts of rhetoric. There is not, indeed, a ſingle pic-

* *Inſtit.* lib. xi. c. 3.

ture

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ture of Raphael's, from the ſtudy of which thoſe who are curious in point of expreſſion may not reap great benefit; particularly his *Martyrdom of St Felicitas*, his *Transfigurations*, his *Joſeph explaining to Pharaoh his dream*, a piece ſo highly rated by Pouſſin. His *School of Athens* in the Vatican, is, to all intents and purpoſes a ſchool of expreſſion. Among the many miracles of art with which this piece abounds, we ſhall ſingle out that of the four boys attending on a mathematician, who, ſtooping to the ground with his compaſſes in his hand, is giving them the demonſtration of a theorem. One of the boys, recollecting within himſelf, keeps back, with all the appearance of profound attention to the reaſoning of the maſter; another, by the briſkneſs of his attitude, diſcovers a greater quickneſs of apprehenſion; while the third, who has already ſeized the concluſion, is endeavouring to beat it into the fourth, who, ſtanding motionleſs, with open arms, a ſtaring countenance, and an unſpeakable air of ſtupidity in his looks, will never perhaps be able to make any thing of the matter. And it is probable from this very group that Albani, who ſtudied Raphael ſo cloſely, drew the following precept of his; "That it behoves a painter to expreſs more circumſtances than one by every attitude; and ſo to employ his figures, that, by barely ſeeing what they are actually about, one may be able to gueſs, both what they have been already doing, and are next going to do." This is indeed a difficult precept; but it is only by a due obſervance of it that the eye and the mind can be made to hang in ſuſpenſe on a painted piece of canvas. It is expreſſion that a painter, ambitious to ſoar in his profeſſion, muſt, above all things, labour to perfect himſelf in. It is the laſt goal of his art, as Socrates proves to Parrhaſius. It is in expreſſion that dumb poetry conſiſts, and what the prince of our poets calls a viſible language.

Xenoph. Memorab. lib. iii.

Sect. IX. *Of Invention.*

As the operations of a general ſhould all ultimately tend to battle and conqueſt, ſo ſhould all the thoughts of a painter to perfect invention. Now, the ſtudies which we have been hitherto recommending, will prove ſo many wings by which he may raiſe himſelf, as it were, from the ground, and ſoar on high, when deſirous of trying his ſtrength this way, and producing ſomething from his own hand. Invention is the finding out probable things, not only ſuch as are adapted to the ſubject in hand, but ſuch, beſides, as by their ſublimity and beauty are moſt capable of exciting ſuitable ſentiments in the ſpectator, and of making him, when they happen to be well executed, fancy that it is the ſubject itſelf in its greateſt perfection, and not a mere repreſentation of it, that he has before him. We do not ſay true things, but probable things; becauſe probability or veriſimilitude is, in fact, the truth of thoſe arts which have the fancy for their object. It is, indeed, the buſineſs and duty of both naturaliſts and hiſtorians to draw objects as they find them, and repreſent them with all thoſe imperfections and blemiſhes, to which, as individuals, they are ſubject. But an ideal painter, and ſuch alone is a true painter, reſembles the poet: inſtead of copying, he imitates: that is, he works with his fancy, and repreſents objects endued with all that perfection which belongs to the ſpecies, and may be conceived in the archetype. Invention.

"'Tis nature all, but nature methodis'd;"

ſays an eminent poet, ſpeaking of poetry: And the ſame may be ſaid of painting; it is nature methodized, and made perfect. Inſomuch, that the circumſtances of the action, exalted and ſublimed to the higheſt degree of beauty and boldneſs they are ſuſceptible of, may, though poſſible, have never happened exactly ſuch as the painter fancies and thinks proper to repreſent them. Thus, the piety of Æneas, and the anger of Achilles, are things ſo perfect in their kind, as to be merely probable. And it is for this reaſon that poetry, which is only another word for invention, is more philoſophical, more inſtructive, and more entertaining, than hiſtory.

Here it is proper to obſerve, what great advantages the ancient had over the modern painters. The hiſtory of the times they lived in, fraught with great and glorious events, was to them a rich mine of the moſt noble ſubjects, which, beſides, often derived no ſmall ſublimity and pathos from the mythology upon which their religion was founded. So far were their gods from being immaterial, and placed at an infinite diſtance above their worſhippers; ſo far was their religion from recommending humility, penance, and ſelf-denial, that, on the contrary, it appeared calculated merely to flatter the ſenſes, inflame the paſſions, and poiſon the fancy. By making the gods partake of our nature, and ſubjecting them to the ſame paſſions, it gave man hopes of being able to mix with thoſe who, though greatly above him, reſembled him, notwithſtanding, in ſo many reſpects. Beſides, thoſe deities of theirs were in a manner viſible, and to be met at every ſtep. The ſea was crowded with Tritons and Nereids, the rivers with Naiads, and the mountains with Dryads. The woods ſwarmed with Fauns and Nymphs, who, in theſe obſcure retreats, ſought an aſylum for their ſtolen embraces. The moſt potent empires, the moſt noble families, the moſt celebrated heroes, all derived their pedigree from the greater divinities. Nay, gods intereſted themſelves in all the concerns of mankind. Apollo, the god of long arrows, ſtood by the ſide of Hector in the fields of Troy, and inſpired him with new ſtrength and courage to batter down the walls and burn the ſhips of the Greeks. Theſe, on the other hand, were led on to the fight and animated by Minerva, preceded by Terror, and followed by Death. Jove nods, his divine locks ſhake on his immortal head; Olympus trembles. With that countenance, which allays the tempeſt, and reſtores ſerenity to the heavens, he gathers kiſſes from the mouth of Venus, the delight of gods and of men. Among the ancients, every thing ſported with the fancy; and in thoſe works which depend entirely on the imagination, ſome of our greateſt maſters have thought they could not do better than borrow from the Pagans, if we may be allowed to ſay it, their pictures of Tartarus, in order to render their own drawings of hell more ſtriking.

After all, there have not been wanting able inventors in painting among the moderns. Michael Angelo, notwithſtanding the depth and boldneſs of his own fancy, is not aſhamed in ſome of his compoſitions, to *Dantize*; as Phidias and Apelles may be ſaid formerly to have

Invention. *Homerized.* Raphael, too, tutored by the Greeks, has found means, like Virgil, to extract the quinteſſence of truth; has ſeaſoned his works with grace and nobleneſs; and exalted nature, in a manner, above herſelf, by giving her an aſpect more beautiful, more animating, and more ſublime, than ſhe is in reality accuſtomed to wear. In point of invention, Domenichino and Hannibal Caracci come very near Raphael, eſpecially in the pieces painted by them in Rome; nor does Pouſſin fall very ſhort of him in ſome of his pictures, particularly in his *Eſther before Ahaſuerus*, and his *Death of Germanicus*, the richeſt jewel belonging to the Barberine family. Of all the painters who have acquired any extraordinary degree of reputation, no one ſtudied leſs to ſet off his pieces by bold and beautiful circumſtances, or was more a ſtranger to what is called *poetical perfection*, than Jacopo Baſſano. Among the numberleſs inſtances we could produce of his careleſſneſs this way, let it ſuffice to mention a *Preaching of St Paul* painted by him in a place, near that of his birth, called *Maroſtego*. Inſtead of repreſenting the apoſtle full of a divine enthuſiaſm, as Raphael has done, and thundering againſt the ſuperſtitions of the heathen in an aſſembly of Athenians; inſtead of exhibiting one of his auditors ſtruck to the quick, another perſuaded, a third inflamed; he makes him hold forth, in a village of the Venetian ſtate, to a parcel of poor peaſants and their wives, who take not the leaſt notice of him; the women eſpecially, who ſeem to mind nothing but the country labours in which he had found them employed.

With regard to invention, painting and poetry reſemble each other ſo much in many other reſpects, beſides that of combining in every action all the beauty and elegance it will admit, that they well deſerve the name of *ſiſter arts*. They differ, however, in one point, and that too of no ſmall importance. It is this. The poet, in the repreſentation of his ſtory, relates what has already happened, prepares that which is ſtill to come, and ſo proceeds, ſtep by ſtep, through all the circumſtances of the action; and, to produce the greater effect on his hearers, avails himſelf of the ſucceſſion of time and place. The painter, on the contrary, deprived of ſuch helps, muſt be content to depend upon one ſingle moment. But what a moment! A moment, in which he may conjure up, at once, to the eyes of the ſpectator, a thouſand objects; a moment, teeming with the moſt beautiful circumſtances that can attend the action; a moment, equivalent to the ſucceſſive labours of the poet. This the works of the greateſt maſters, which are everywhere to be ſeen, ſufficiently evince: among others, the *St Paul at Lyſtra*, by Raphael, whom it is impoſſible not to praiſe as often as this picture is mentioned. In order to give the ſpectator a thorough inſight into the ſubject of this piece, the painter has placed in the front of it the cripple already reſtored to his limbs by the apoſtle, fired with gratitude towards his benefactor, and exciting his countrymen to yield him all kinds of honour. Round the cripple are ſome figures lifting up the ſkirts of his coat, in order to look at the legs reduced to their proper ſhape, and acknowledging by geſtures full of aſtoniſhment the reality of the miracle; an invention, ſays a certain author, a profeſſed admirer of antiquity, which might have been propoſed as an example in the happieſt age of Greece.

Webb, dial. 7.

We have another ſhining inſtance of the power of painting to introduce a greater variety of objects on the ſcene at the ſame time, and of the advantage it has in this reſpect over poetry, in a drawing by the celebrated La Fage. This drawing repreſents the deſcent of Æneas into hell. The field is the dark caverns of Pluto's kingdom, through the middle of which creeps ſlowly the muddy and melancholy Acheron. Nearly in the centre of the piece appears Æneas with the golden bough in his hand, and with an air of aſtoniſhment at what he ſees. The Sibyl, who accompanies him, is anſwering the queſtions which he aſks her. The perſonage there is the ferryman of the pitchy lake, by which even the gods themſelves are afraid to ſwear. Thoſe who, crowding in to the banks of the river, numberleſs as the leaves ſhaken off the trees by autumnal blaſts, expreſs, with outſtretched hands, an impatience to be ferried to the oppoſite ſhore, are the unhappy manes, who, for want of burial, are unqualified for that happineſs. Charon, accordingly, is crying out to them, and with his lifted-up oar driving them from his boat, which has already taken in a number of thoſe who had been honoured with the accuſtomed funeral rites. Behind Æneas and the Sibyl we diſcover a confuſed group of wretched ſouls, lamenting bitterly their misfortune in being denied a paſſage; two of them wrapped up in their clothes; and, in a fit of deſpair, ſunk upon a rock. Upon the firſt lines of the piece ſtands a third group of uninhumed ſhades. Leucaſpes, Orontes, and, in the midſt of them, the good old Palinurus, formerly maſter and pilot of the hero's own veſſel, who with joined hands moſt earneſtly deſires to be taken along with him into the boat, that, after death, at leaſt, he may find ſome repoſe, and his dead body no longer remain the ſport of winds and waves. Thus, what we ſee ſcattered up and down in many verſes by Virgil, is here, as it were, gathered into a focus, and concentered by the ingenious pencil of the painter, ſo as to form a ſubject well worthy of being expoſed, in more ſhapes than one, to the eyes of the public.

Invention.

When a painter takes a ſubject in hand, be it hiſtorical, be it fabulous, he ſhould carefully peruſe the books which treat of it, imprint well on his mind all the circumſtances that attend it, the perſons concerned in it, and the paſſions with which they muſt have been ſeverally animated; not omitting the particulars of time and place. His next buſineſs is to create it, as it were, anew, obſerving the rules already laid down for that purpoſe: From what is true, chooſing that which is moſt ſtriking; and clothing his ſubject with ſuch acceſſory circumſtances and actions, as may render it more conſpicuous, pathetic, and noble, and beſt diſplay the powers of the inventive faculty. But, in doing this, great diſcretion is requiſite; for, let his imagination grow ever ſo warm, his hand is never to execute any thing that is not fully approved by his judgement. Nothing low or vulgar ſhould appear in a lofty and noble argument; a fault, of which ſome of the greateſt maſters, even Lampieri and Pouſſin, have been now and then guilty.

The action muſt be one, the place one, the time one. We need not ſay any thing of thoſe painters, who, like the writers of the Chineſe and Spaniſh theatre, cram a variety of actions together, and ſo give us at once the whole life of a man. Such blunders, it is preſumed, are too groſs to be feared at preſent. The

Invention. politeneſs and learning of the age ſeem to demand conſiderations of a more refined nature; ſuch as, that the epiſodes introduced in the drama of a picture, the better to fill and adorn it, ſhould be not only beautiful in themſelves, but indiſpenſably requiſite. The games celebrated at the tomb of Anchiſes, in Sicily, have a greater variety in them, and more ſources of delight, than thoſe that had been before celebrated at the tomb of Patroclus under the walls of Troy. The arms forged by Vulcan for Æneas, if not better tempered, are at leaſt better engraved, than thoſe which the ſame god had forged ſeveral ages before for Achilles. Nevertheleſs, in the eyes of judges, both the games and the arms of Homer are more pleaſing than thoſe of Virgil, becauſe the former are more neceſſary in the Iliad than the latter in the Æneid. Every part ſhould agree with, and have a relation to, the whole. Unity ſhould reign even in variety; for in this beauty conſiſts. This is a fundamental maxim in all the arts whoſe object it is to imitate the works of nature.

Pictures often borrow no ſmall grace and beauty from the fictions of poetry. Albani has left us, in ſeveral of his works, ſufficient proofs of the great ſhare the belles lettres had in refining his taſte. But Raphael, above all others, may in this branch too be conſidered as a guide and maſter. To give but one inſtance out of many; what a beautiful thought was it to repreſent the river himſelf, in a *Paſſage of Jordan*, ſupporting his waters with his own hands, in order to open a way to the army of the Iſraelites! Nor has he diſplayed leſs judgement in reviving, in his deſigns engraved by Agoſtino of Venice, the little loves of Aëtius playing with the arms of Alexander, conquered by the beauty of Roxana.

Among the ancients, Apelles and Parrhaſius were thoſe who diſtinguiſhed themſelves moſt in allegorical ſubjects, in which the inventive faculty ſhows itſelf to the greateſt advantage; the firſt by his picture of *Calumny* *, the ſecond by that of the *Genius of the Athenians* †. The ancient painter called *Galaton* gave likewiſe a fine proof of his genius in this branch, by repreſenting a great number of poets greedily quenching their thirſt in the waters guſhing from the mouth of the ſublime Homer. And to this allegory, according to Guigni, Pliny ‡ has an eye, when he calls that prince of poets the *fountain of wits*. But it is, after all, no way ſurpriſing that we ſhould often meet ſuch fine flights of fancy in the ancient artiſts. They were not guided in their works by a blind practice: they were men of polite education, converſant with the letters of the age in which they lived; and the companions rather than the ſervants of the great men who employed them. The fineſt allegorical painter among the moderns was Rubens; and he was accordingly much celebrated for it. The beſt critics, however, find fault with his uniting in the Luxemberg gallery, the queen-mother, in council, with two cardinals and Mercury. Nor is there leſs impropriety in his making Tritons and Nereids, in another piece of the ſame gallery, ſwim to the queen's veſſel through the galleys of the knights of St Stephen. Such freedoms are equally diſguſting with the prophecies of Sannazaro's Proteus, concerning the myſtery of the incarnation, or the Indian kings of Camoens, reaſoning with the Portugueſe on the adventures of Ulyſſes.

* See *Lucian* upon Calumny; and *Carlo Dati*, in the *Life of Apelles*, note 20.

† *C. Plinii Nat. Hiſt.* lib. xxxv. c. 10.

‡ *Plinii Nat. Hiſt.* lib. xvii. c. 5. *Webb*, dial. 4.

Polym. dial. 18.

The beſt modern performances in picturesque allegory are certainly thoſe of Pouſſin; who availed himſelf, with great diſcretion and judgement, of the vaſt treaſures with which, by a cloſe ſtudy of the ancients, he had enriched his memory. On the other hand, Le Brun, his countryman, has been very unhappy this way. Ambitious to have every thing his own, inſtead of allegories, he has filled the gallery of Verſailles with enigmas and riddles, of which none but himſelf was qualified to be the Oedipus. Allegory muſt be ingenious, it is true; but then it muſt be equally perſpicuous; for which reaſon, a painter ſhould avoid all vague and indeterminate alluſions, and likewiſe thoſe to hiſtory and heathen mythology, which are too abſtruſe to be underſtood by the generality of ſpectators. The beſt way, perhaps, to ſymbolize moral and abſtract things, is to repreſent particular events: as Caracci did, by advice of Monſignore Agucchi, in the Farneſian palace. For example, what can better expreſs a hero's love towards his country, than the virtuous Decius conſecrating himſelf boldly to the infernal gods, in order to ſecure victory to his countrymen over their enemies? What finer emblems can we deſire of emulation, and an inſatiable thirſt for glory, than Julius Cæſar weeping before the ſtatue of Alexander in the temple of Hercules at Gades? of the inconſtancy of fortune, than Marius ſitting on the ruins of Carthage, and receiving, inſtead of the acclamations of an army joyfully ſaluting him imperator, orders from a lictor of Sextilius to quit Africa? of indiſcretion, than Candaules, who, by ſhowing the naked beauties of his wife to his friend Gyges, kindled a paſſion that ſoon made him repent his folly? Such repreſentations as theſe require no comment; they carry their explanations along with them. Beſides, ſuppoſing, and it is the worſt we can ſuppoſe, that the painter's aim in them ſhould happen not to be underſtood, his piece would ſtill give delight. It is thus that the fables of Arioſto prove ſo entertaining, even to thoſe who underſtand nothing of the moral couched under them; and likewiſe the Æneis, though all do not comprehend the alluſions and double intent of the poet.

Invention.

See *Belori's Life of Caracci.*

Sect. X. *Of Diſpoſition.*

So much for invention. *Diſpoſition*, which may be conſidered as a branch of invention, conſiſts in the proper ſtationing of what the inventive faculty has imagined, ſo as to expreſs the ſubject in the moſt lively manner. The chief merit of diſpoſition may be ſaid to conſiſt in that diſorder, which, wearing the appearance of mere chance, is in fact the moſt ſtudied effect of art. A painter, therefore, is equally to avoid the dryneſs of thoſe ancients who always planted their figures like ſo many couples in a proceſſion, and the affectation of thoſe moderns who jumble them together as if they were met merely to fight and ſquabble. In this branch Raphael was happy enough to chooſe the juſt medium, and attain perfection. The diſpoſition of his figures is always exactly ſuch as the ſubject requires. In the *Battle of Conſtantine*, they are confuſedly cluſtered with as much art, as they are regularly marſhalled in *Chriſt's commitment of the keys to St Peter*, and conſtituting him prince of the apoſtles.

Let the inferior figures of a piece be placed as they will, the principal figure ſhould ſtrike the eye moſt, and ſtand

Diſpoſition. ſtand out, as it were, from among the reſt. This may be effected various ways, as by placing it on the foremoſt lines, or in ſome other conſpicuous part of the piece; by exhibiting it, in a manner, by itſelf; by making the principal light fall upon it; by giving it the moſt reſplendent drapery; or, indeed, by ſeveral of theſe methods, nay, by all of them together. For, being the hero of the pictureſque fable, it is but juſt that it ſhould draw the eye to itſelf, and lord it, as it were, over all the other objects.

According to Leon Batiſta Alberti, painters ſhould follow the example of comic writers, who compoſe their fable of as few perſons as poſſible. For, in fact, a crowded picture is apt to give as much pain to the ſpectator, as a crowded road to the traveller.

Some ſubjects, it muſt be granted, require a number, nay, a nation, as it were, of figures. On theſe occaſions, it depends entirely on the ſkill of the painter to diſpoſe of them in ſuch a manner, that the principal ones may always make the principal appearance; and contrive matters ſo that the piece be not overcrowded, or want convenient reſts and pauſes. He muſt, in a word, take care that his piece be full, but not charged. In this reſpect, the *Battles of Alexander* by Le Brun are maſterpieces which can never be ſufficiently ſtudied; whereas nothing, on the other hand, can be more unhappy than the famous *Paradiſe* of Tintoret, which covers one entire ſide of the great council-chamber at Venice. It appears no better than a confuſed heap of figures, a ſwarm, a cloud, a chaos, which pains and fatigues the eye. What a pity it is that he did not diſpoſe this ſubject after a model of his own, now in the gallery of Bevilacqua at Verona! In this laſt the ſeveral choirs of martyrs, virgins, biſhops, and other ſaints, are judiciouſly thrown into ſo many cluſters, parted here and there by a fine fleece of clouds, ſo as to exhibit the innumerable hoſt of heaven drawn up in a way that makes a moſt agreeable and glorious appearance. There goes a ſtory, to our purpoſe, of a celebrated maſter, who in a drawing of the Univerſal Deluge, the better to expreſs the immenſity of the waters that covered the earth, left a corner of his paper without figures. Being aſked, if he did not intend to fill it up: No, ſaid he; do not you ſee my leaving it empty is what preciſely conſtitutes the picture?

The reaſon for breaking a compoſition into ſeveral groups is, that the eye, paſſing freely from one object to another, may the better comprehend the whole. But the painter is not to ſtop here; for theſe groups are, beſides, to be ſo artfully put together, as to form rich cluſters, give the whole compoſition a ſingular air of grandeur, and afford the ſpectator an opportunity of diſcerning the piece at a diſtance, and taking the whole in, as it were, at a ſingle glance. Theſe effects are greatly promoted by a due regard to the nature of colours, ſo as not to place together thoſe which are apt to pain by their oppoſition, or diſtract by their variety. They ſhould be ſo judiciouſly diſpoſed as to temper and qualify each other.

A proper uſe of the chiaro-ſcuro is likewiſe of great ſervice on this occaſion. The groups are eaſily parted, and the whole picture acquires a grand effect, by introducing ſome ſtrong falls of ſhade, and, above all, one principal beam of light. This method has been followed with great ſucceſs by Rembrandt in a famous picture of his, repreſenting the Virgin at the foot of the croſs on Mount Calvary; the principal light darting upon her through a break of the clouds, while the reſt of the figures about her ſtand more or leſs in the ſhade. Tintoret, too, acquired great reputation, as well by that briſkneſs with which he enlivened his figures, as by his maſterly manner of ſhading them; and Polidoro de Caravaggio, though he ſcarcely painted any thing but baſſo-relievos, was particularly famous for introducing with great ſkill the effects of the chiaro-ſcuro, a thing firſt attempted by Mantegna in his *Triumph of Julius Cæſar*. It is by this means that his compoſitions appear ſo ſtrikingly divided into different groups, and, among their other perfections, afford ſo much delight through the beautiful diſpoſition that reigns in them. Diſpoſition.

In like manner, a painter, by the help of perſpective, eſpecially that called *aërial*, the oppoſition of local colours, and other contrivances which he may expect to hit upon by ſtudying nature, and thoſe who have beſt ſtudied her before him, will be able not only to part his groups, but make them appear at different diſtances, ſo as to leave ſufficient paſſages between them.

But the greateſt caution is to be uſed in the purſuit of the methods here laid down; eſpecially in the management of the chiaro-ſcuro, that the effects attributed to light and ſhade, and to their various concomitants, may not run counter to truth and experience. This is a capital point. For this purpoſe, a painter would do well to make, in little figures, as Tintoret and Pouſſin uſed to do, a model of the ſubject that he intends to repreſent, and then illuminate it by lamp or candle-light. By this means he may come to know with certainty, if the chiaro-ſcuro, which he has formed in his mind, does not claſh with the reaſon of things. By varying the height and direction of his light, he may eaſily diſcover ſuch accidental effects as are moſt likely to recommend his performance, and ſo eſtabliſh a proper ſyſtem for the illuminating it. Nor will he afterwards find it a difficult matter to modify the quality of his ſhades, by ſoftening or ſtrengthening them, according to the ſituation of his ſcene, and the quality of the light falling upon it. If it ſhould happen to be a candle or lamp-light ſcene, he would then have nothing to do but conſider his model well, and faithfully copy it.

In the next place, to turn a group elegantly, the beſt pattern is that of a bunch of grapes adopted by Titian. As, of the many grains that compoſe a bunch of grapes, ſome are ſtruck directly by the light, and thoſe oppoſite to them are in the ſhade, whilſt the intermediate ones partake of both light and ſhade in a greater or leſs degree; ſo, according to Titian, the figures of a group ſhould be ſo diſpoſed, that, by the union of the chiaro-ſcuro, ſeveral things may appear as it were but one thing. And in fact it is only from his having purſued this method, that we can account for the very grand effect of his pieces this way, in which it is impoſſible to ſtudy him too much.

The manneriſts, who do not follow nature in the track of the maſters juſt mentioned, are apt to commit many faults. The reaſon of their figures caſting their ſhades in this or that manner ſeldom appears in the picture, or at leaſt does not appear ſufficiently probable. They are, beſides, wont to treſpaſs all bounds in ſplaſhing their pieces with light, that is, in enlivening thoſe parts which we uſually term the deaſs of a picture. This method,

Diſpoſition. no doubt, has ſometimes a very fine effect; but it is, however, to be uſed with no ſmall diſcretion, as otherwiſe the whole loſes that union, that pauſe, that majeſtic ſilence, as Caracci uſed to call it, which affords ſo much pleaſure. The eye is not leſs hurt by many lights ſcattered here and there over a picture, than the ear is by the confuſed noiſe of different perſons ſpeaking all together in an aſſembly.

Hogarth's Analyſis of Beauty.

Guido Reni, who has imparted to his paintings that gaiety and ſplendor in which he lived, ſeems enamoured with a bright and open light; whereas Michael Angelo de Caravaggio, who was of a ſullen and ſavage diſpoſition, appears fondeſt of a gloomy and clouded ſky: ſo that neither of them were qualified to handle indifferently all objects. The chiaro-ſcuro may likewiſe prove of great ſervice to a painter in giving his compoſition a grand effect; but, nevertheleſs, the light he chooſes muſt be adapted to the ſituation of the ſcene where the action is laid: nor would he be leſs faulty, who in a grotto or cavern, where the light entered by a chink, ſhould make his ſhades ſoft and tender, than he who ſhould repreſent them ſtrong and bold in an open ſky-light.

But this is by no means the only fault which manneriſts are apt to be guilty of in hiſtorical pieces, and particularly in the diſpoſition of their figures. To ſay nothing of their favourite group of a woman lying on the ground with one child at her breaſt, and another playing about her, and the like, which they generally place on the firſt lines of their pieces; nor of thoſe half-figures in the back ground peeping out from the hollows contrived for them: they make a common practice of mixing naked with clothed figures; old men with young; placing one figure with its face towards you, and another with its back; they contraſt violent motions with languid attitudes, and ſeem to aim at oppoſition in every thing; whereas oppoſitions never pleaſe, but when they ariſe naturally from the ſubject, like antitheſes in a diſcourſe.

As to foreſhortened figures, too much affectation in uſing or avoiding them is equally blameable. The attitudes had better be compoſed than otherwiſe. It very ſeldom happens that there is any occaſion for making them ſo impetuous as to be in danger of loſing their equilibrium; a thing too much practiſed by ſome painters.

In regard to drapery, equal care ſhould be taken to avoid that poverty, which makes ſome maſters look as if, through mere penury, they grudged clothes to their figures; and that profuſion which Albani imputed to Guido, ſaying, that he was rather a tailor than a painter. The ornaments of dreſs ſhould be uſed with great ſobriety; and it will not be amiſs to remember what was once ſaid to an ancient painter: "I pity you greatly: unable to make Helen handſome, you have taken care to make her fine."

Let the whole, in a word, and all the different parts of the diſpoſition, poſſeſs probability, grace, coſtume, and the particular character of what is to be repreſented. Let nothing look like uniformity of manner; which does not appear leſs in the compoſition than it does in colouring, drapery, and deſign; and is, as it were, that kind of accent, by which painters may be as readily diſtinguiſhed as foreigners are, by pronouncing in the ſame manner all the different languages they happen to be acquainted with. Illuſion.

Sect. XI. *Of Illuſion.*

Among painters, and the writers on painting, there is one maxim univerſally admitted and continually inculcated; it is, that *nature ought to be imitated*, and objects are ſaid to be repreſented naturally, when they have ſuch relief that they may ſeem real. If we inquire to what degree painting may carry this illuſion, we ſhall find that it deceives the eye, and obliges the ſpectator to employ the touch in mouldings and in baſſo-relievos where they are a little projected; but that it is weakened, and the effect partly deſtroyed where the projection is one or two feet. It is poſſible alſo to make it in the higheſt degree complete in pictures of flowers, fruits, and other repreſentations of ſtill life, provided they be ſeen in a certain point of view, and at a conſiderable diſtance; but there is no example of a picture containing a number of figures, and placed in a proper light, being miſtaken for real life. We are told, indeed, of a buſt of an abbé painted by Charles Coypel, which, placed in a certain direction behind a table, and in a certain light, deceived ſeveral perſons ſo completely as to induce them to ſalute it: but, without admitting any thing very extraordinary in the projection or illuſion of this painting, it is evident, from the circumſtances attending the relation, that the deception aroſe from ſurpriſe and inattention, which might happen to a production of an inferior artiſt. And hence we may conclude that it is vain to pretend to perfect the illuſion, eſpecially in pictures conſiſting of a number of figures, and with conſiderable diſtances ſuppoſed between them.

Among the obſtacles which are oppoſed to the perfection of this branch of the art, we ſhall chiefly attend to thoſe which naturally proceed from our habits of thinking and judging on all occaſions. Theſe, together with the experience we daily have of light on all kinds of ſurfaces, and of all colours, are ſufficient to demonſtrate the want of reality in the mere repreſentation of any ſcenes.

It has been elſewhere ſhewn, that diſtance, figure, and magnitude, are not naturally objects of perception by the ſenſe of ſight; that we judge of theſe things by the eye only, in conſequence of aſſociations early formed between the perceptions of touch and the correſponding impreſſions on the retina and optic nerve by the rays of light; and that a painter makes his picture reſemble the original, merely by laying his colours on a plane ſurface in ſuch a manner, as that they reflect the ſame rays of light with the convex or concave original, when the ſpectator ſtands at the proper diſtance (ſee Metaphyſics, N° 49, 50, 51, 52, and 95.). But if this be admitted, illuſion in painting can never be made perfect, on account of the inevitable falſity of the ſhades which mark the moſt diſtant parts of the picture. The painter can only imitate thoſe ſhades by obſcure colours, laid on a plane ſurface, and ſuſceptible of reflecting the light with a degree of force relative to the real diſtance. Now our eyes give us the true plane of this ſurface, oppoſed to the idea of deepening which the painter wiſhes to produce, a contrariety which prevents the deception. On this account, the faults found in the works of the

greateſt

Illuſion. greateſt maſters, with regard to the effects produced by the whole, moſt frequently relate to their manner of ſhading, which is ſufficient to prove, that the want of illuſion in painting depends chiefly on the imperfection of the ſhades.

This defect, though it cannot be wholly avoided, may yet be rendered leſs perceptible. There has yet, indeed, been no painter able to imitate ſhadow, nor is it probable that any one will ever perfectly accompliſh his taſk. Shadow in nature is not a body, but the privation of light, which deſtroys colours in a greater or leſs degree, in proportion as it is more or leſs complete. Now the painter can only imitate this privation and real darkneſs, by colours which muſt from their very nature be capable of reflecting light.—The colours may be more or leſs obſcure, but they preſerve always ſomething which gives a mixture of reflection. To carry the imitation of ſhadow to the higheſt degree of perfection, it would be neceſſary to apply a colour capable of darkening all others, more or leſs as there ſhould be occaſion, and which might have no viſible trace of its exiſtence, that is, no one part of it which reflected one coloured ray more ſtrongly than another. Perhaps this kind of negative colour might be found in practice to be of ſervice to the art; but it would not render the ſurface totally inviſible, for it would be neceſſary, farther, that it ſhould have the property of not reflecting a ſingle ray of light when expoſed to it; which is altogether impoſſible, as there is no colour or body in nature without reflection in ſuch a ſituation.

We ſhall be further convinced of the impoſſibility of painting ſhadow, if we attend to the pictures of the greateſt maſters, with regard to the imitation of truth. Every part, when taken by itſelf, connected with light, or with demitints, preſents a perfect imitation. Even the different degrees of light or the objects are ſufficiently exact; but notwithſtanding this aſſemblage of circumſtances correſponding with truth, and of which the reſult ſhould be perfect *illuſion*, yet in conſidering the whole, we are never ſo completely deceived, as to take a picture for a reality; from which we may conclude, that the want of illuſion proceeds almoſt entirely from the imperfection of ſhading.

Illuſion then, in the ſtricteſt ſenſe, cannot exiſt in painting; but there is another kind of illuſion, perhaps improperly ſo called, which is one of the principal parts of the art, and worthy of the greateſt attention: It is, that the picture ſhall reſemble truth to ſuch a degree, by the juſtneſs of its forms, by the combination of colours, and by all its general effects, that the image ſhall give all the pleaſure to be expected from the imitation of truth. This is not illuſion in the proper ſenſe of the word, ſince it exiſts as well in pictures on a ſmall ſcale as in thoſe of equal dimenſions with the original; but it is that truth of imitation of which painting is ſuſceptible, even in pictures containing any numbers of figures at any reaſonable diſtance from each other.

But it remains to be conſidered whether this imitation of truth, taken by itſelf, be the higheſt attainable perfection in painting. It is generally granted, that the greateſt beauty is that which not only pleaſes at firſt view, but on the neareſt and moſt critical examination. But if illuſion, ſuch as we have deſcribed it, were the ſole merit of the art, it would follow, that the perſon who was leaſt acquainted with its beauties would experience the ſame pleaſure as he who had ſtudied them moſt. Farther, in examining the works of the greateſt maſters, it is eaſy to perceive, that it is not their illuſion which has excited the attention and admiration of the critic. Even the works of the divine Raphael do not deceive the eye in any point of view more completely than thoſe of an ordinary painter. Raphael, pure in his character and deſign, is, without doubt, very deficient in this part of the art. Meanwhile the grandeur of his ideas in compoſition, and the choice of his forms; the beauty of his heads, wherein one does not admire ſimply the imitation of any known truth; his ingenious and noble manner in drapery, which yet does not reſemble any known ſtuff, or the garb of any nation; in ſhort, all his beauties are ſuperior to the ſimple imitation of truth, and contradict the ſentiment of the greateſt pleaſure ariſing from illuſion. Illuſion.

If we paſs to thoſe who have purſued colouring with the greateſt ſucceſs, we ſhall find them, doubtleſs, approach nearer to illuſion than thoſe who have neglected it; and it is alſo a fact, that their works have been more univerſally admired.

At the ſame time it is not the illuſion occaſioned by colours which has altogether excited this admiration. The exquiſite demitints and the freſhneſs of Corregio and Titian, which excel the ordinary beauties of nature, and even imitate her moſt perfect productions, may perhaps not be conſidered as deſtroying illuſion; but it is no leſs a fact, that weaker and leſs precious colouring would carry it to greater perfection. Beſides, this large, eaſy, and exquiſite manner of painting, this harmony, of which they have given us the beſt examples, are owing to qualities in them much more excellent than what would be ſufficient to produce the ſimple imitation of truth. Guido, Cortona, and ſome others, appear to approach nearer to illuſion. But even thoſe maſters prove by their works, that the moſt eſtimable beauties in painting do not all tend to this branch of the art; for notwithſtanding the high character which they have gained, they are much inferior to Raphael, Corregio, and Titian, although the firſt failed in colouring and in the knowledge of the claro-obſcuro, the ſecond in point of correctneſs, and the third in the choice of noble ſubjects.

From this we may conclude, that the neareſt reſemblance to truth is not the ſole object in painting; that it requires a ſuperior degree of elevation by the art of adding beauty and perfection to the moſt exact reſemblance; and that it is this art which diſtinguiſhes and characterizes extraordinary men.

If we run over the great branches of painting, we ſhall find a number of eſſential beauties different from thoſe which are capable of carrying illuſion to the greateſt poſſible height. In compoſition, we principally admire the extent of genius, the choice of picturesque and graceful attitudes, the ingenious combination of groups, whether in uniting the light and ſhade in order to obtain the greateſt effect, or in diſpoſing a whole in ſuch a manner as to make no part ſuperfluous; and finally, that kind of practical talent by which the mind takes poſſeſſion of nature, and forces it to produce all the beauties of which the art is ſuſceptible. In this enumeration of particulars it is eaſy to perceive that the beauties of compoſition are very diſtant from thoſe of illuſion.

Illuſion. To obtain illuſion in deſign, there is no occaſion for correctneſs nor taſte beyond what is perceived in nature by the moſt ignorant ſpectator. And with regard to colouring, that is not always moſt admired which is moſt natural. What departs widely from truth, indeed, is not of conſequence beautiful, but many qualities are required beſides the ſimple imitation of truth. Freſhneſs, eaſe, and tranſparency in certain tones, are deemed abſolutely requiſite; and the moſt eſteemed colouriſts have carried their beauties in all theſe reſpects beyond what they have ſeen in nature. If ſome tones in the fleſhy parts have approached towards vermilion, to a light-blue, or a ſilver-gray, they have made them more apparent; not only to point them out to the ſpectator, but to ſhow their knowledge in the diſcovery and their art in painting them. This would have been going beyond the limits of perfection, if theſe had conſiſted in ſimple illuſion.

The oppoſition of colour, of light, and of ſhade, would have been in this caſe alſo ſuperfluous; for nature is always true, without any pointed attempt to make her more engaging. The ſuppreſſion of certain lights, which truth would require, and which art extinguiſhes, in order to augment the harmony of effect, would be alſo worthy of cenſure, whatever pleaſure would reſult from it.

Finally, one of the greateſt beauties of the art, namely, the peculiar manner of a great maſter, has no relation to illuſion. This is not even founded in nature, but depends on the genius or ſingularity of the artiſt. It is this manner which diſtinguiſhes the original of a great maſter from the moſt exact copy; and which characterizes the talents of the artiſts ſo well, that the ſmalleſt part of the picture, and even the leaſt intereſting, is ſufficient to diſcover the painter. The diſtinction between the beautiful and illuſive in painting has made Sir Joſhua Reynolds, in expreſs terms, recommend a perfection ſuperior to the imitation of nature. "The principle now laid down (ſays he), that the perfection of the art does not conſiſt in mere imitation, is far from being new or ſingular. It is, indeed, ſupported by the general opinion of the enlightened part of mankind. The poets, orators, and rhetoricians of antiquity, are continually enforcing this poſition, that all the arts receive their perfection from an ideal beauty, ſuperior to what is to be found in individual nature. They are ever referring to the practice of the painters and ſculptors of their times, particularly Phidias the favourite artiſt of antiquity, to illuſtrate their aſſertions. As if they could not ſufficiently expreſs their admiration of his genius by what they knew, they have recourſe to poetical enthuſiaſm. They call it inſpiration; a gift from heaven. The artiſt is ſuppoſed to have aſcended the celeſtial regions to furniſh his mind with this perfect idea of beauty. 'He (ſays Proclus) who takes for his model ſuch forms as nature produces, and confines himſelf to an exact imitation of them, will never attain to what is perfectly beautiful. For the works of nature are full of diſproportion, and fall ſhort of the true ſtandard of beauty. So that Phidias, when he formed his Jupiter, did not copy any object ever preſented to his ſight; but contemplated only that image which he had conceived in his mind from Homer's deſcription.'

"It is not eaſy to define in what this great ſtyle conſiſts, nor to deſcribe by words the proper means of acquiring it, if the mind of the ſtudent ſhould be at all capable of ſuch an acquiſition. Could we teach taſte or genius by rules, they would be no longer taſte and genius. But though there neither are nor can be any preciſe invariable rules for the exerciſe or the acquiſition of theſe great qualities; yet we may truly ſay that they always operate in proportion to our attention in obſerving the works of nature, to our ſkill in ſelecting, and to our care in digeſting, methodiſing, and comparing our obſervations. There are many beauties in our art that ſeem at firſt to lie without the reach of precept, and yet may eaſily be reduced to practical principles. Experience is all in all; but it is not every one that profits by experience: and moſt people err not ſo much from want of capacity to find their object, as from not knowing what object to purſue. This great ideal perfection and beauty are not to be ſought in the heavens, but upon the earth. They are about us, and upon every ſide of us: But the power of diſcovering what is deformed in nature, or, in other words, what is particular or uncommon, can be acquired only by experience; and the whole beauty and grandeur of the art conſiſts in being able to get above all ſingular forms, local cuſtoms, particularities, and details of every kind." Illuſion.

After theſe opinions, however, derived from the practice of the art, and this high authority, it may not be improper to hazard a few obſervations. Although illuſion can be diſtinguiſhed from many of the moſt excellent parts of the art taken ſeparately, yet it does not follow that it ſhall not add in every picture to the beauty of the whole. It is impoſſible to ſtate it in oppoſition to deſign, to compoſition, to colouring, or to the peculiar manner of a great artiſt; becauſe all theſe may exiſt where there alſo exiſts the moſt perfect illuſion. This is evident from the works of art: which have real relievo, and which at the ſame time are capable of perfection in all thoſe branches, and of ſhowing the peculiar manner of the artiſt. Again, it appears evident, that *illuſion*, properly ſo called, ſhould be a proper object of attention in painting. We may rate the ideal beauty very high, and with great juſtice; but it ſtill conſiſts in overcoming the defects in individual objects in nature, and not in departing from the truth of repreſentation. And perhaps it may be alleged, that the impoſſibility of giving perfect illuſion on a plane ſurface has puſhed the greateſt maſters too far, and made them crowd artificial beauties into their pictures to conceal their want of power to give real ones. It is not improbable that on this very account the art is leſs perfect than otherwiſe it might have been: For in all ſubjects thought to be impoſſible, there is not only great room for exertion, but the perſon carries the art to greater perfection as he comes nearer to ſhow that it may not be impoſſible. And if the works of Raphael, in point of illuſion, are not ſuperior to an ordinary artiſt, we may be permitted to ſay that there is great room for improvement in this branch.

Sect. XII. *Of the Coſtume.*

The coſtume in painting correſponds with the unities of time, place, and action, in tragedy and in epic poetry. It is chiefly confined to hiſtory painting; and regards the cuſtoms of different periods, the manners, the dreſs, and the colour, of different nations. Great exactneſs in the coſtume is ſcarcely practicable; but too ſenſible a

Coſtume. departure from it denotes unpardonable negligence. It frequently happens that a piece compoſed of picturesque figures derives conſiderable advantage from certain liberties which are calculated to pleaſe both the artiſt and the ſpectator; for the judges of painting are not habitually occupied with the details of ancient and modern hiſtory, or profoundly verſed in all the circumſtances which make a departure from the coſtume conſpicuous. On the other hand, if they were ſo ignorant as not to underſtand, or ſo indifferent as not to regard thoſe circumſtances, this branch of the art would be altogether arbitrary. The road of the painter is between theſe two extremes, not to deſpiſe beauty on the one hand, nor probability on the other. But in purſuing this part of the art, it is in vain to ſeek for perfect models in ancient or modern painting.

Mancheſter Tranſactions, vol. iii. p. 564. &c. "When Raphael in his cartoons introduces monks and Swiſs guards; when he puts into a boat more figures than it is evident the boat could actually contain; when in the chaſtiſement of Heliodorus, who attempted to deſpoil the temple of Jeruſalem, Pope Julius II. is depicted as being preſent; when, in the donation of Conſtantine in the Vatican, a naked boy is placed conſpicuous in the fore ground, aſtride upon a dog, in the immediate preſence of the pope and the emperor; when Venetian ſenators are introduced while Pope Alexander excommunicates Barbaroſſa; when Ariſtotle, Plato, Dante, and Petrarch, are brought together in the ſchool of Athens, to omit the leſſer improprieties of ſhoeleſs apoſtles, &c.—every perſon muſt acknowledge that ſuch offences as theſe againſt truths ſo obvious, if they do not ariſe from a defect of underſtanding, are inſtances of inexcuſable careleſſneſs.

"In like manner, when the ſame great maſter paints the dreams of Joſeph and his fellow-priſoner in circles over their heads; when ſimilar contrivances to expreſs future events are uſed by Albani, Parmeggiano, and Fuſeli—is it not evident that no poſſibility can make the fiction true; and that real and feigned exiſtences are unnaturally introduced in one narration?

"When Polydore chooſes to repreſent the death of Cato, and expoſes to the ſpectator the hero of the piece with his bowels guſhing out; when Paul Veroneſe, at a banquet painted with his uſual magnificence, places before us a dog gnawing a bone, and a boy making water: however ſuch diſguſting circumſtances may be forgiven in the *chef d'œuvre* of a Michael Angelo, had he repreſented theſe inſtead of the horrible figures of his Day of Judgement, the performance of an inferior artiſt cannot atone for them.

"So alſo, when one of the firſt rate among the modern painters, we mean Paul Veroneſe, introduces Benedictine monks at the marriage of Cana; when, in a picture of the crucifixion, he puts the Roman ſoldiers in the jerkins of the 16th century, and adorns their heads with turbans; when Guido, in a painting of Jeſus appearing to his mother after his reſurrection, places St Charles Borromèe in a kind of deſk in the back-ground as witneſs to the interview; when Tintoret, at the miraculous fall of manna, arms the Iſraelites with fuſils; and Corregio appoints St Jerome as the inſtructor of the child Jeſus—common ſenſe revolts at the impropriety; and we are compelled to exclaim, *Quicquid oſtendis mihi ſic, incredulus odi!*

"The mythological taſte of the learned Pouſſin is well known; but Rubens ſeems to claim the merit of having preſented to the world a ſtill greater number of ſupreme abſurdities in this learned ſtyle: nor is it eaſy to conceive a more heterogeneous mixture of circumſtances, real and imaginary, ſacred and profane, than the Luxembourg gallery, and the other works of that great maſter, perpetually exhibit. Coſtume.

"When ſo great an authority as Sir Joſhua Reynolds contends for the rejection of common ſenſe in favour of ſomewhat he terms a *higher ſenſe*; when he laments, indirectly, that art is not in ſuch high eſtimation with us, as to induce the generals, lawgivers, and kings of modern times, to ſuffer themſelves to be repreſented naked, as in the days of ancient Greece; when he defends even the ridiculous aberrations from poſſibility, which the extravagant pencil of Rubens has ſo plentifully produced—it is not ſurpriſing that the artiſts of the preſent day ſhould be led to reject the company of common ſenſe; or that Sir Joſhua's performances ſhould furniſh examples of his own precepts. * *Diſcourſes*, 8vo. p. 266.

"Mrs Siddons is repreſented by Sir Joſhua in the character (as it is ſaid) of the tragic muſe: She is placed in an old-faſhioned arm chair; this arm chair is ſupported by clouds, ſuſpended in the air; on each ſide of her head is a figure not unapt to ſuggeſt the idea of the attendant imps of an enchantreſs: of theſe figures, one is ſuppoſed to repreſent Comedy, and the other Tragedy; Mrs Siddons herſelf is decently attired in the faſhionable habilements of 20 or 30 years ago.

"If this be a picture of the tragic muſe, ſhe ought not to appear in a modern dreſs, nor ought ſhe to be ſeated in an old arm chair. If this be a portraiture of Mrs Siddons, ſhe has no buſineſs in the clouds, nor has ſhe any thing to do with aerial attendants. If this be Mrs Siddons in the character of the tragic muſe, the firſt ſet of objections apply; for ſhe is placed in a ſituation where Mrs Siddons could never be.

"In the death of Dido, Sir Joſhua Reynolds introduces her ſiſter, lamenting over the corpſe of the unfortunate queen. This is poſſible; but he has alſo introduced Atropos cutting Dido's hair with a pair of ſciſſars, a being equally real and apparent in the painting with Dido or her ſiſter. This (continues our author) appears to me a groſs offence againſt mythological probability; nor is it the only offence againſt the coſtume with which that picture is chargeable.

"There is one other breach of the coſtume, however common among painters, more groſs and offenſive than any of the inſtances hitherto alleged; we mean the perpetual and unneceſſary diſplay of the naked figure. We ſhall not ſtay to inquire whether more ſkill can be ſhown in painting the human body clothed or unclothed. If the perſonages introduced in any picture are more naked in the repreſentation than can be juſtified by the probability of the times, perſons, places, or circumſtances, it is a breach of the coſtume proportionate to the deviation. *This* fault, however, is ſo common as hardly to be noticed; ſo ſlight indeed, when compared with that general taſte for voluptuous imagery and obſcene repreſentation, which has ſo long diſgraced the art of painting in every ſtage of its progreſs, that ſcience and morality are callous to the *ſlight* offence.

"This depravity of imagination, this proſtitution of the pencil to the baſe purpoſes of laſcivious inclination, was a ſubject of much complaint among the ancients.

Nor

Coſtume. Nor is there leſs reaſon to complain in modern times, that this delightful art, which might be employed in exciting the nobleſt ſentiments, and become ſubſervient to the beſt intereſts of ſociety, ſhould ſo often be exerciſed upon ſubjects ſolely calculated to pleaſe the eye of the voluptuary and debauchee. It is hardly poſſible to paſs through any admired collection without meeting with ſome of theſe; of which, however excellent the performance may be, the common feelings of decency and morality (if we are neither profeſſed artiſts nor connoiſſeurs) prevent us from viewing them without a mixture of diſguſt."

Abbe de Marſy. *Et pudor averſos texit velamine vultus* *.

It is impoſſible to expreſs how much a picture ſuffers by ſuch looſeneſs of fancy, and ſinks as a baſtard of the art in the eſteem of good judges. Some people, indeed, are of opinion, that ſo ſcrupulous an obſervance of the coſtume is apt to hurt pictures, by depriving them of a certain air of truth, ariſing, they think, from thoſe features and habits to which we are accuſtomed; and which are therefore apt to make a greater impreſſion, than can be expected from things drawn from the remote ſources of antiquity; adding withal, that a certain degree of licence has ever been allowed thoſe artiſts who in their works muſt make fancy their chief guide. See, ſay they, the Greeks; that is, the maſters of Raphael and Pouſſin themſelves. Do they ever trouble their heads about ſuch niceties? The Rhodian ſtatuaries, for example, have not ſcrupled to repreſent Laocoon naked; that is, the prieſt of Apollo naked in the very act of ſacrificing to the gods, and that too in preſence of a whole people, of the virgins and matrons of Ilium. Now, continue they, if it was allowable in the ancient ſtatuaries to neglect probability and decency to ſuch a degree, to have a better opportunity of diſplaying their ſkill in the anatomy of the human body; why may it not be allowable in modern painters, the better to attain the end of their art, which is deception, to depart now and then a little from the ancient manners and the too rigorous laws of the coſtume? But theſe reaſons, we beg leave to obſerve, are more abſurd than they are ingenious. What! are we to draw concluſions from an example, which, far from deciding the diſpute, gives occaſion to another? The learned are of opinion, that thoſe Rhodian maſters would have done much better had they looked out for a ſubject in which, without offending ſo much againſt truth, and even probability, they might have had an equal opportunity of diſplaying their knowledge of the naked. And certainly no authority or example whatever ſhould tempt us to do any thing contrary to what both decency and the reaſon of things require, unleſs we intend, like Carpioni, to repreſent

Sogni d'infermi, è fole di romanzi.
The dreams of ſick men, and the tales of fools.

No: a painter, the better to attain the end of his art, which is deception, ought carefully to avoid mixing the antique with the modern, the domeſtic with the foreign; things, in ſhort, repugnant to each other, and therefore incapable of gaining credit. A ſpectator will never be brought to conſider himſelf as actually preſent at the ſcene, the repreſentation of which he has before him, unleſs the circumſtances which enter it perfectly agree among themſelves, and the field of action, if we may uſe the expreſſion, in no ſhape belies the action itſelf. For inſtance, the circumſtances, or, if you pleaſe, the acceſſories, in a *Finding of Moſes*, are not, ſurely, to repreſent the borders of a canal planted with rows of poppies, and covered with country-houſes in the European taſte; but the banks of a great river ſhaded with cluſters of palm trees, with a Sphinx or an Anubis in the adjacent fields, and here and there in the back-ground a a towering pyramid. And indeed the painter, before he takes either canvas or paper in hand, ſhould, on the wings of fancy, tranſport himſelf to Egypt, to Thebes, or to Rome; and ſummoning to his imagination the phyſiognomy, the dreſs, the plants, the buildings, ſuitable to his ſubject, with the particular ſpot where he has choſen to lay his ſcene, ſo manage his pencil, as, by the magic of it, to make the enraptured ſpectators fancy themſelves there along with him. Proper Books for a Painter.

Sect. XIII. *Of proper Books for a Painter.*

From what has been already ſaid, it may be eaſily gathered, that a painter ſhould be neither illiterate nor unprovided with books. Many are apt to imagine, that the Iconologia of Ripa, or ſome ſuch collection, is alone ſufficient for this purpoſe, and that all the apparatus he ſtands in need of, may be reduced to a few caſts of the remains of antiquity, or rather to what Rembrandt uſed to call his *antiques*, being nothing more than coats of mail, turbans, ſhreds of ſtuff, and all manner of old houſehold trumpery and wearing apparel. Such things, no doubt, are neceſſary to a painter, and perhaps enough for one who wants only to paint half-lengths, or is willing to confine himſelf to a few low ſubjects. But they are by no means ſufficient for him who would ſoar higher; for a painter who would attempt the Univerſe, and repreſent it in all its parts, ſuch as it would appear, had not matter proved refractory to the intentions of the ſovereign Artiſt. Such a painter alone is a true, an univerſal, a perfect painter.——No mortal, indeed, muſt ever expect to riſe to that ſublimity; yet all ſhould aſpire to it, on the pain of otherwiſe ever continuing at a very mortifying diſtance from it: as the orator, who wiſhes to make a figure in his profeſſion, ſhould propoſe to himſelf no leſs a pattern than that perfect orator deſcribed by Tully; nor the courtier, than that perfect courtier delineated by Caſtiglione. It cannot, therefore, appear ſurpriſing, if we inſiſt on the propriety of reckoning a good collection of books as part of ſuch a painter's implements. The Bible, the Greek and Roman hiſtorians, the works of Homer, that prince of poets, and of Virgil, are the moſt claſſical. To theſe let him add the Metamorphoſes of Ovid, ſome of our beſt poets, the voyage of Pauſanias, Vinci, Vaſari, and others, upon painting. *Algarotti on Painting.*

It will alſo be of conſiderable advantage to him to have a well choſen collection of drawings by the beſt maſters (D), in order to trace the progreſs and hiſtory

(D) We have formerly (ſee *Hiſtory of* Anatomy), mentioned a great anatomical work carrying on by Andrew

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of his art, and make himſelf acquainted with the various ſtyles of painting which have been, and now are, in the greateſt vogue. The prince of the Roman ſchool was not aſhamed to hang up in his ſtudy the drawings of Albert Durer; and ſpared no pains or expence to acquire all the drawings he could meet with that were taken from baſſo-relievos; things which the art of engraving has ſince rendered ſo common as to be in every one's hands. This art of multiplying drawings by means of the graver, is of the ſame date, and boaſts the ſame advantages, with the art of printing, by means of which the works of the mind are multiplied, as it were, at one ſtroke, and diſperſed over the whole world.

The ſight of fine ſubjects treated by able maſters, and the different forms which the ſame ſubjects aſſume in different hands, cannot fail both of enlightening and enflaming the mind of the young painter. The ſame may be ſaid of the peruſal of good poets and hiſtorians, with the particulars and proofs of what they advance; not to mention thoſe ideas and flights of invention, with which the former are wont to clothe, beautify, and exalt every thing they take in hand. Bouchardon, after reading Homer, conceived, to uſe his own words, that men were three times taller than before, and that the world was enlarged in every reſpect. It is very probable, that the beautiful thought of covering Agamemnon's face with the ſkirt of his mantle at the ſacrifice of Iphigenia, was ſuggeſted to Timantes by the tragedy of Euripides. And the ſublime conceit of Raphael, who, in a *Creation* of his, repreſents God in the immenſe ſpace, with one hand reaching to the ſun and the other to the moon, may be conſidered as the child of the following words of the Pſalmiſt: *The heavens declare the glory of God, and the firmament ſheweth his handy-work.*

This thought of Raphael has been, indeed, cenſured by Mr Webb. "A God (ſays this gentleman), extending one hand to the ſun, and another to the moon, deſtroys that idea of immenſity which ſhould accompany the work of creation, by reducing it to a world of a few inches." But the opinion of Count Algarotti is very different. "For my part, (ſays that elegant critic), I cannot diſcover in this painting a world of a few inches, but a world on a much greater ſcale; a world of millions and millions of miles: and yet this ſo immenſe a world, by means of that act of the Godhead, in which with one hand he reaches to the ſun, and with the other to the moon, ſhrinks, in my imagination, to a mere nothing, in reſpect to the immenſity of God himſelf; which is all that the powers of painting can pretend to. This invention is, though in a contrary ſenſe, of the ſame kind with that of Timantes, who, to expreſs the enormous ſize of a ſleeping Polyphemus, placed round him ſome ſatyrs meaſuring the monſter's thumb with a thyrſus. Hence Pliny, who relates the fact, takes occaſion to tell us, that his works always imply more than they expreſs; and that how great ſoever he may be in execution, he is ſtill greater in invention: *Atque in omnibus ejus operibus intelligitur plus ſemper quam pingitur; et cum ars ſumma ſit, ingenium tamen ultra artem eſt.*" Nat. Hiſt. lib. xxxv. c. 10.

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The peruſal of good authors cannot but be very ſerviceable to a painter in another reſpect; as, among the great number of ſubjects afforded by hiſtory and poetry, he may expect to meet with many on which his talents may diſplay themſelves to the greateſt advantage. A painter can never be too nice in the choice of his arguments; for on the beauty of them, that of his piece will greatly depend. How much to be pitied, therefore, were our firſt maſters, in being ſo often obliged to receive their ſubjects from the hands of ſimple and illiterate perſons! and what is worſe, to ſpend all the riches of their art upon barren or unworthy ſubjects! Such are the repreſentations of thoſe ſaints, who, though they never had the leaſt intercourſe with each other, and perhaps even lived in different ages, are, notwithſtanding, to be introduced, *tete à tete*, as it were, into the ſame picture. The mechanic of the art may, indeed, diſplay itſelf on theſe occaſions: but by no means the ideal. The diſpoſition may be good and praiſeworthy, as in the works of Cortoni and Lanfranc; but we are not to expect in them either invention or expreſſion, which require for their baſis the repreſentation of ſome fact capable of producing ſuch effects. Who does not, on the bare mention of this abuſe, immediately recollect many ſad inſtances of it? ſuch as the famous St Cecilia of Raphael, ſurrounded by St Paul, St Mary Magdalen, St John, and St Auguſtin; and the picture of Paolo Veroneſe, in the veſtry of the Nuns of St Zachary at Venice, in which St Francis of Aſſizium, St Catharine, and St Jerome richly habited in his cardinal's robes, form a ring round the Virgin ſeated on a throne with the child Jeſus in her arms; perhaps the moſt beautiful and picturesque of all the inſipid and inſignificant pieces with which Italy abounds. It is very ſhocking to think, that young painters ſhould be obliged to ſtudy their art from ſuch wretched compoſitions.

The ſubjects in which the pencil triumphs moſt, and with which a judicious painter may ſtock himſelf by the peruſal of good books, are, no doubt, thoſe which are moſt univerſally known, which afford the largeſt field for a diſplay of the paſſions, and contain the greateſt variety of incidents, all concurring, in the ſame point of time, to form one principal action. Of this the ſtory of Coriolanus beſieging Rome, as related by Livy, is a ſhining example. Nothing can be imagined more beautiful than the ſcene of action itſelf, which ought to take in the prætorium in the camp of the Volſcians, the Tiber behind it, and the ſeven hills, among which the towering Capitol is, as it were, to lord it over the reſt. It is impoſſible to conceive a greater variety, than what muſt appear in that crowd of ſoldiers, women, and children, all which are to enter the compoſition; unleſs, perhaps, it be that of the different paſſions with which they are ſeverally agitated; ſome wiſhing that Coriolanus may raiſe the ſiege, others fearing it, others again ſuſpecting it. But the principal group forms the picturesque part

Andrew Bell, Eſq. in Edinburgh, of the figures of which, as they are engraved under the inſpection of ſo able an anatomiſt as Mr Fyfe, and with the approbation of Dr Monro, we may at leaſt form a favourable opinion; and if well executed, of which there can be but little doubt, they will unqueſtionably be of eſſential ſervice to the painter.

Painter's Balance.

part of the piece. Coriolanus, haſtily deſcending from his tribunal, and hurried on by filial affection, to embrace his mother, ſtops ſhort through ſhame, on her crying out to him, Hold! let me firſt know, if it is a ſon, or an enemy, I am going to embrace? Thus a painter may impart novelty to the moſt hackneyed ſubject, by taking for his guides thoſe authors who poſſeſs the happy talent of adding grace and dignity, by their beautiful and ſublime deſcriptions, even to the moſt common and trifling tranſactions.

Livy, Dec. ii. lib. 2.

Sect. XIV. *Of the Painter's Balance.*

The celebrated De Piles, who by his writings has thrown ſo much light upon painting, in order to aſſiſt young painters in forming a right judgement of thoſe maſters who hold the firſt rank in the profeſſion, and to reduce ſuch judgement to the greater preciſion, bethought himſelf of a pictorical balance, by means of which a painter's merit may be weighed with the greateſt exactneſs. This merit he divides into Compoſition, Deſign, Colouring, and Expreſſion; and in each of theſe branches he has aſſigned to every painter that ſhare to which he thought him intitled, according as he approached more or leſs the higheſt degree of excellence and ſummit of perfection; ſo that, by ſumming up the numbers which, ſtanding againſt each maſter's name, expreſs his ſhare of merit in each of theſe branches, we have his total merit or value in the art, and may hence gather what rank one painter holds in regard to another. Several objections, it is true, have been ſtarted to this method of calculation, by a famous mathematician of our days, who, among other things, inſiſts, that it is the product of the above numbers multiplied by each other, and not the ſum of them, that gives the merit of the artiſt. But this is not a place to enter into ſuch niceties, nor indeed would the doing of it be of any ſervice to the art. The only thing worth our notice is, whether the original numbers, ſtanding for the painter's merit in the ſeveral branches of his art, are ſuch as he is really intitled to, without ſuffering ourſelves to be biaſſed by any partiality, as De Piles has been, in favour of the prince of the Flemiſh ſchool; the conſequence of which, ſtrange as it may appear, is, that in his balance Raphael and Rubens exactly turn out of the ſame weight.

See Mairan's remarks, in *Mem. de l'Acad. des Sciences.* 1753.

The idea of the painter's balance is doubtleſs curious, and therefore deſerved to be mentioned; but as the merits of the moſt eminent painters have been already appreciated under the ſecond ſection of the hiſtorical part of our article, to which we refer, it is needleſs to be more particular here, or to repeat what has been already treated of at ſufficient length.

Sect. XV. *Practical Obſervations.*

Having thus laid down the principles of the art, and ventured to give the ſtudent ſome directions with regard to his ſtudies, we ſhall conclude this part of the ſubject with a few obſervations relative wholly to practice.

And, 1. The young painter muſt be careful not to be led aſtray by the ambition of compoſing eaſily, or attaining what is called a *maſterly handling* of the chalk or the pencil; a pernicious attempt, by which ſtudents are excluded from all power of advancing in real excellence. To this attempt, however, young men have not only the frivolous ambition of being thought maſterly, inciting them on the one hand, but alſo their natural ſloth tempting them on the other. They are terrified at the proſpect before them, and of the toil required to obtain exactneſs; whilſt the lives of the moſt eminent painters furniſh us with examples of the moſt unceaſing induſtry. When they conceived a ſubject, they firſt made a variety of ſketches; then a finiſhed drawing of the whole; after that a more correct drawing of every ſeparate part, heads, hands, feet, and pieces of drapery; they then painted the picture, and after all retouched it from the life. The pictures thus wrought with ſuch care, now appear like the effects of enchantment, and as if ſome mighty genius had ſtruck them off at a blow.

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But a ſtudent is not always advancing becauſe he is employed; he muſt apply his ſtrength to that part of the art where the real difficulties lie; to that part which diſtinguiſhes it as a liberal art, and not by miſtaken induſtry loſe his time in that which is merely ornamental. The ſtudents, inſtead of vying with each other who ſhall have the readieſt hand, ſhould be taught to labour who ſhall have the pureſt and moſt correct outline; inſtead of ſtriving who ſhall produce the brighteſt tint, or endeavouring to give the gloſs of ſtuffs ſo as to make them appear real, let their ambition be directed to contend, who ſhall diſpoſe his drapery in the moſt graceful folds, and give the greateſt dignity to the human form.

He who endeavours to copy accurately the figure before him, not only acquires a habit of exactneſs and preciſion, but is continually advancing in his knowledge of the human figure; and though he ſeems to ſuperficial obſervers to make a ſlower progreſs, he will be found at laſt capable of adding (without running into capricious wildneſs) that grace and beauty which is neceſſary to be given to his more finiſhed works, and which cannot be got by the moderns, as it was not acquired by the ancients, but by an attentive and well-directed ſtudy of the human form.

2. It is, in the next place, a matter of great importance, that the drawings on which the young artiſt firſt exerciſes his talents be of the moſt excellent kind. Let the profiles, the hands, and the feet given him to copy, be of the beſt maſters, ſo as to bring his eye and his hand early acquainted with the moſt elegant forms and the moſt beautiful proportions. A painter who has early acquired a fine taſte, finds it an eaſy matter to give dignity to the meaneſt features, while even the works of a Praxiteles or a Glycon are ſeen to ſuffer in the hands of another. A veſſel will ever retain the ſcent which it has firſt contracted.

3. It would be proper alſo to make the pupil copy ſome fine heads from the Greek and Roman medals; not ſo much for the reaſon juſt laid down, as to make him acquainted, if we may uſe the expreſſion, with thoſe perſonages which in time he may have occaſion to introduce into his pieces, and, above all, to improve him early in the art of copying from relief. Hence he will learn the rationale of light and ſhade, and the nature of that chiaro ſcuro by which it is, properly ſpeaking, that the various forms of things are diſtinguiſhed.

There is no danger of ſtudying too much the works of

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of the greateſt maſters, either in painting or ſculpture; but how they may be ſtudied to advantage is an inquiry of great importance. "Some (ſays Sir Joſhua Reynolds), who have never raiſed their minds to the conſideration of the real dignity of the art, and who rate the works of an artiſt in proportion as they excel or are defective in the mechanical parts, look on theory as ſomething that may enable them to talk, but not to paint better; and, confining themſelves entirely to mechanical practice, very aſſiduouſly toil in the drudgery of copying, and think they make a rapid progreſs, while they faithfully exhibit the minuteſt part of a favourite picture. This appears to me a very tedious, and, I think, a very erroneous method of proceeding. Of every large compoſition, even of thoſe which are moſt admired, a great part may be truly ſaid to be common place. This, though it takes up much time in copying, conduces little to improvement. I conſider general copying as a deluſive kind of induſtry: the ſtudent ſatisfies himſelf with the appearance of doing ſomething; he falls into the dangerous habit of imitating without ſelecting, and of labouring without any determinate object: as it requires no effort of the mind, he ſleeps over his work; and thoſe powers of invention and compoſition which ought particularly to be called out, and put in action, lie torpid, and loſe their energy for want of exerciſe.

"However, as the practice of copying is not entirely to be excluded, ſince the mechanical practice of painting is learned in ſome meaſure by it, let thoſe choice parts only be ſelected which have recommended the work to notice. If its excellence conſiſts in its general effect, it will be proper to make ſlight ſketches of the machinery and general management of the picture. Thoſe ſketches ſhould be kept always by you, for the regulation of your ſtyle. Inſtead of copying the touches of thoſe great maſters, copy only their conceptions. Inſtead of treading in their footſteps, endeavour only to keep the ſame road. Labour to invent on their general principles and way of thinking. Poſſeſs yourſelf with their ſpirit. Conſider with yourſelf how a Michael Angelo or a Raphael would have treated this ſubject, and work yourſelf into a belief that your picture is to be ſeen and criticiſed by them when completed. Even an attempt of this kind will rouſe your powers."

The ſame great maſter recommends to ſtudents to keep their minds fixed on the higheſt excellencies.—"If you compaſs them, and compaſs nothing more, you are ſtill in the firſt claſs. We may regret the innumerable beauties which you may want: you may be very imperfect; but ſtill you are an imperfect perſon of the higheſt order.

"I inculcate as frequently as I can your forming yourſelves upon great principles and great models.—Your time will be much miſpent in every other purſuit. Small excellencies ſhould be viewed, not ſtudied; they ought to be viewed, becauſe nothing ought to eſcape a painter's obſervation, but for no other reaſon.

"There is another caution which I wiſh to give you. Be as ſelect in thoſe whom you endeavour to pleaſe, as in thoſe whom you endeavour to imitate. Without the love of fame you can never do any thing excellent; but by an exceſſive and undiſtinguiſhing thirſt after it, you will come to have vulgar views; you will degrade your ſtyle; and your taſte will be entirely corrupted. It is certain that the loweſt ſtyle will be the moſt popular, as it falls within the compaſs of ignorance itſelf, and the vulgar will always be pleaſed with what is natural in the confined and miſunderſtood ſenſe of the word."

Genius he conſiders as an improveable talent, never to be deſtroyed by the moſt exceſſive, if well directed, application, and diſplaying the elegancies of the art in proportion to the number of ideas which have been carefully collected and digeſted in the mind.

He cautions painters, therefore, in every ſtage of their progreſs, to beware of that falſe opinion, but too prevalent among artiſts, of the imaginary power of native genius, and its ſufficiency in great works.

This opinion, according to the temper of mind it meets with, almoſt always produces, either a vain confidence or a ſluggiſh deſpair, both equally fatal to all proficiency. "Study, therefore, the great works of the great maſters for ever. Study, as nearly as you can, in the order, in the manner, on the principles on which they ſtudied. Study nature attentively, but always with thoſe maſters in your company: conſider them as models which you are to imitate, and at the ſame time as rivals whom you are to combat.

Part II. Of the Different Classes of Painting.

Sect. I. *General Enumeration.*

AS all the objects in nature are ſuſceptible of imitation by the pencil, the maſters of this art have applied themſelves to different ſubjects, each one as his talents, his taſte, or inclination may have led him.—From whence have ariſen the following claſſes.

I. *Hiſtory painting;* which repreſents the principal events in hiſtory ſacred and profane, real or fabulous; and to this claſs belongs *allegorical expreſſion.* Theſe are the moſt ſublime productions of the art; and in which Raphael, Guido, Rubens, Le Brun, &c. have excelled.

II. *Rural hiſtory;* or the repreſentation of a country life, of villages and hamlets, and their inhabitants. This is an inferior claſs; and in which Teniers, Breughel, Watteau, &c. have great reputation, by rendering it at once pleaſing and graceful.

III. *Portrait painting;* which is an admirable branch of this art, and has engaged the attention of the greateſt maſters in all ages, as Apelles, Guido, Vandyke, Rembrandt, Regauds, Peſne, Kneller, La Tour, &c.

IV. *Groteſque hiſtories;* as the nocturnal meetings of witches, ſorceries and incantations; the operations of mountebanks, &c. a ſort of painting in which the younger Breughel, Teniers, and others, have exerciſed their talents with ſucceſs.

V. *Battle*

General Enumeration.

V. *Battle-pieces;* by which Huchtemberg, Wouvermans, &c. have rendered themſelves famous.

VI. *Landſcapes;* a charming ſpecies of painting, that has been treated by maſters of the greateſt genius in every nation.

VII. *Landſcapes diverſified with waters*, as rivers, lakes, cataracts, &c.; which require a peculiar talent, to expreſs the water ſometimes ſmooth and tranſparent, and at others foaming and ruſhing furiouſly along.

VIII. *Sea pieces;* in which are repreſented the ocean, harbours, and great rivers; and the veſſels, boats, barges, &c. with which they are covered; ſometimes in a calm, ſometimes with a freſh breeze, and at others in a ſtorm. In this claſs Backhuyſen, Vandervelde, Blome, and many others, have acquired great reputation.

IX. *Night pieces;* which repreſent all ſorts of objects, either as illuminated by torches, by the flames of a conflagration, or by the light of the moon. Schalk, Vanderneer, Vanderpool, &c. have here excelled.

X. *Living Animals:* A more difficult branch of painting than is commonly imagined; and in which Roſa, Carre, Vandervelde, and many others, have ſucceeded marvellouſly well.

XI. *Birds of all kinds;* a very laborious ſpecies, and which requires extreme patience minutely to expreſs the infinite variety and delicacy of their plumage.

XII. *Culinary pieces;* which repreſent all ſorts of proviſions, and animals without life, &c. A ſpecies much inferior to the reſt, in which nature never appears to advantage, and which requires only a ſervile imitation of objects that are but little pleaſing. The painting of fiſhes is naturally referred to this claſs.

XIII. *Fruit pieces*, of every kind, imitated from nature.

XIV. *Flower pieces;* a charming claſs of painting, where Art in the hands of Huyzum, P. Segerts, Merian, &c. becomes the rival of Nature. *Plants* and *inſects* are uſually referred to the painters of flowers, who with them ornament their works.

XV. *Pieces of architecture;* a kind of painting in which the Italians excel all others. Under this claſs may be comprehended the repreſentations of ruins, ſeaports, ſtreets, and public places; ſuch are ſeen in the works of Caneletti, and other able maſters.

XVI. *Inſtruments of muſic*, *pieces of furniture*, and other inanimate objects; a trifling ſpecies, and in which able painters only accidentally employ their talents.

XVII. *Imitations of bas-reliefs;* a very pleaſing kind of painting, and which may be carried by an able hand to a high degree of excellence.

XVIII. *Hunting pieces*: theſe alſo require a peculiar talent, as they unite the painting of men, horſes, dogs, and game, to that of landſcapes.

It will not be expected that we ſhould here give the rules that the painter is to obſerve in handling each particular ſubject. What has been ſaid on hiſtorical painting (Part I.*) may throw ſome light on the reſt, and the particular rules muſt be learned from the ſtudy of the art itſelf. Good maſters, academies of reputation, and a rational practice, are the ſources from whence the young painter muſt derive the detail of his art. We ſhall however inſert ſome rules and obſervations relative to *Landſcape* and *Portrait;* theſe, with *Hiſtory painting* (already pretty fully treated), forming the principal branches of the art.

* In the ſections of *Invention* and *Diſpoſition.*

Landſcapes.

Sect. II. *Of Landſcapes.*

Landscape painting includes every object that the country preſents: and it is diſtinguiſhed into the *heroic*, and the *paſtoral* or *rural*; of which indeed all other ſtyles are but mixtures.

De Piles on Painting.

The *heroic ſtyle* is a compoſition of objects, which in their kinds draw both from art and nature every thing that is great and extraordinary in either. The ſituations are perfectly agreeable and ſurpriſing. The only buildings are temples, pyramids, ancient places of burial, altars conſecrated to the divinities, pleaſure houſes of regular architecture; and if nature appear not there as we every day caſually ſee her, ſhe is at leaſt repreſented as we think ſhe ought to be. This ſtyle is an agreeable illuſion, and a ſort of enchantment, when handled by a man of fine genius and a good underſtanding, as Pouſſin was, who has ſo happily expreſſed it. But if, in the courſe of this ſtyle, the painter has not talent enough to maintain the ſublime, he is often in danger of falling into the childiſh manner.

The *rural ſtyle* is a repreſentation of countries, rather abandoned to the caprice of nature, than cultivated: we there ſee nature ſimple, without ornament, and without artifice; but with all thoſe graces wherewith ſhe adorns herſelf much more when left to herſelf than when conſtrained by art.

In this ſtyle, ſituations bear all ſorts of varieties: ſometimes they are very extenſive and open, to contain the flocks of the ſhepherds; at others very wild, for the retreat of ſolitary perſons, and a cover for wild beaſts.

It rarely happens that a painter has a genius extenſive enough to embrace all the parts of painting: there is commonly ſome one part that pre-engages our choice, and ſo fills our mind, that we forget the pains that are due to the other parts; and we ſeldom fail to ſee, that thoſe whoſe inclination leads them to the heroic ſtyle, think they have done all, when they have introduced into their compoſitions ſuch noble objects as will raiſe the imagination, without ever giving themſelves the trouble to ſtudy the effects of good colouring. Thoſe, on the other hand, who practiſe the paſtoral, apply cloſely to colouring, in order to repreſent truth more lively. Both theſe ſtyles have their ſectaries and partiſans. Thoſe who follow the heroic, ſupply by their imagination what it wants of truth, and they look no farther.

As a counterbalance to heroic landſcape, it would be proper to put into the paſtoral, beſides a great character of truth, ſome affecting, extraordinary, but probable effect of nature, as was Titian's cuſtom.

There is an infinity of pieces wherein both theſe ſtyles happily meet; and which of the two has the aſcendant, will appear from what we have been juſt obſerving of their reſpective properties. The chief parts of landſcapes are, their openings or ſituations, accidents, ſkies and clouds, offskips and mountains, verdure or turfing, rocks, grounds, or lands, terraces, fabrics, waters, fore-grounds, plants, figures, and trees; of all which in their places.

Of

Landſcapes. *Of Openings or Situations.* The word *ſite*, or ſituation, ſignifies the "view, proſpect, or opening of a country." It is derived from the Italian word *ſito;* and our painters have brought it into uſe, either becauſe they were uſed to it in Italy, or becauſe, as we think, they found it to be very expreſſive.

Situations ought to be well put together; and ſo diſengaged in their make, that the conjunction of grounds may not ſeem to be obſtructed, though we ſhould ſee but a part of them.

Situations are various, and repreſented according to the country the painter is thinking of: as either open or cloſe, mountainous or watery, tilled and inhabited, or wild and lonely; or, in fine, variegated by a prudent mixture of ſome of theſe. But if the painter be obliged to imitate nature in a flat and regular country, he muſt make it agreeable by a good diſpoſition of the *claro-obſcuro*, and ſuch pleaſing colouring as may make one ſoil unite with another.

It is certain, that extraordinary ſituations are very pleaſing, and cheer the imagination by the novelty and beauty of their makes, even when the local colouring is but moderately performed: becauſe, at worſt, ſuch pictures are only looked on as unfiniſhed, and wanting to be completed by ſome ſkilful hand in colouring; whereas common ſituations and objects require good colouring and abſolute finiſhing, in order to pleaſe. It was only by theſe properties that Claude Lorrain has made amends for his inſipid choice in moſt of his ſituations. But in whatever manner that part be executed, one of the beſt ways to make it valuable, and even to multiply and vary it without altering its form, is properly to imagine ſome ingenious accident in it.

Of Accidents.—An accident in painting is an obſtruction of the ſun's light by the interpoſition of clouds, in ſuch manner, that ſome parts of the earth ſhall be in light and others in ſhade, which, according to the motion of the clouds, ſucceed each other, and produce ſuch wonderful effects and changes of the *claro-obſcuro*, as ſeem to create ſo many new ſituations. This is daily obſerved in nature. And as this newneſs of ſituations is grounded only on the ſhapes of the clouds, and their motions, which are very inconſtant and unequal, it follows, that theſe accidents are arbitrary; and a painter of genius may diſpoſe them to his own advantage when he thinks fit to uſe them: For he is not abſolutely obliged to do it; and there have been ſome able landſcape painters who have never practiſed it, either through fear or cuſtom, as Claude Lorrain and ſome others.

Of the Sky and Clouds.—The ſky, in painters terms, is the ethereal part over our heads; but more particularly the air in which we breathe, and that where clouds and ſtorms are engendered. Its colour is blue, growing clearer as it approaches the earth, becauſe of the interpoſition of vapours ariſing between the eye and the horizon; which, being penetrated by the light, communicates it to objects in a greater or leſſer degree, as they are more or leſs remote.

But we muſt obſerve, that this light being either yellow or reddiſh in the evening, at ſunſet, theſe ſame objects partake not only of the light, but of the colour: thus the yellow light mixing with the blue, which is the natural colour of the ſky, alters it, and gives it a tint more or leſs greeniſh, as the yellowneſs of the light is more or leſs deep. Landſcapes.

This obſervation is general and infallible: but there is an infinity of particular ones, which the painter muſt make upon the natural, with his pencil in his hand, when occaſion offers; for there are very fine and ſingular effects appearing in the ſky, which it is difficult to make one conceive by phyſical reaſons. Who can tell, for example, why we ſee, in the bright part of ſome clouds, a fine red, when the ſource of the light which plays upon them is a moſt lively and diſtinguiſhing yellow? Who can account for the different reds ſeen in different clouds, at the very moment that theſe reds receive the light but in one place? for theſe colours and ſurpriſing appearances ſeem to have no relative to the rainbow, a phenomenon for which the philoſopher pretends to give ſolid reaſons.

Theſe effects are all ſeen in the evening when the weather is inclining to change, either before a ſtorm, or after it, when it is not quite gone, but has left ſome remains of it to draw our attention.

The property of clouds is to be thin and airy, both in ſhape and colour: their ſhapes, though infinite, muſt be ſtudied and choſen after nature, at ſuch times as they appear fine. To make them look thin, we ought to make their grounds unite thinly with them, eſpecially near their extremities, as if they were tranſparent: And if we would have them thick, their reflections muſt be ſo managed, as, without deſtroying their thinneſs, they may ſeem to wind and unite, if neceſſary, with the clouds that are next to them. Little clouds often diſcover a little manner, and ſeldom have a good effect, unleſs when, being near each other, they ſeem altogether to make but one object.

In ſhort, the character of the ſky is to be luminous; and, as it is even the ſource of light, every thing that is upon the earth muſt yield to it in brightneſs: If, however, there is any thing that comes near it in light, it muſt be waters, and poliſhed bodies which are ſuſceptible of luminous reflections.

But whilſt the painter makes the ſky luminous, he muſt not repreſent it always ſhining throughout.

On the contrary, he muſt contrive his light ſo, that the greateſt part of it may fall only upon one place: and, to make it more apparent, he muſt take as much care as poſſible to put it in oppoſition to ſome terreſtrial object, that may render it more lively by its dark colour; as a tree, tower, or ſome other building that is a little high.

This principal light might alſo be heightened, by a certain diſpoſition of clouds having a ſuppoſed light, or a light ingeniouſly incloſed between clouds, whoſe ſweet obſcurity ſpreads itſelf by little and little on all hands. We have a great many examples of this in the Flemiſh ſchool, which beſt underſtood landſcape; as Paul Bril, Brugel, Saveri: And the Sadelers and Merian's prints give a clear idea of it, and wonderfully awaken the genius of thoſe who have the principles of the *claro-ſcuro.*

Of Offskips and Mountains.—Offskips have a near affinity with the ſky; it is the ſky which determines either the force or faintneſs of them. They are darkeſt when the ſky is moſt loaded, and brighteſt when it is moſt clear. They ſometimes intermix their ſhapes and lights;

Landſcapes. lights; and there are times, and countries, where the clouds paſs between the mountains, whoſe tops riſe and appear above them. Mountains that are high, and covered with ſnow, are very proper to produce extraordinary effects in the offskip, which are advantageous to the painter, and pleaſing to the ſpectator.

The diſpoſition of offskips is arbitrary; let them only agree with the whole together of the picture, and the nature of the country we would repreſent. They are uſually blue, becauſe of the interpoſition of air between them and the eye: but they loſe this colour by degrees, as they come nearer the eye, and ſo take that which is natural to the objects.

In diſtancing mountains, we muſt obſerve to join them inſenſibly by the roundings off, which the reflections make probable; and muſt, among other things, avoid a certain edgineſs in their extremities, which makes them appear in ſlices, as if cut with ſciſſars, and ſtuck upon the cloth.

We muſt further obſerve, that the air, at the feet of mountains, being charged with vapours, is more ſuſceptible of light than at their tops. In this caſe we ſuppoſe the main light to be ſet reaſonably high, and to enlighten the mountains equally, or that the clouds deprive them of the light of the ſun. But if we ſuppoſe the main light to be very low, and to ſtrike the mountains, then their tops will be ſtrongly enlightened, as well as every thing elſe in the ſame degree of light.

Though the forms of things diminiſh in bigneſs, and colours loſe their ſtrength, in proportion as they recede from the firſt plan of the picture, to the moſt remote offſkip, as we obſerve in nature and common practice; yet this does not exclude the uſe of the accidents. Theſe contribute greatly to the wonderful in landſcape, when they are properly introduced, and when the artiſt has a juſt idea of their good effects.

Of Verdure, or *Turfing*. By turfing is meant the greenneſs with which the herbs colour the ground: This is done ſeveral ways; and the diverſity proceeds not only from the nature of plants, which, for the moſt part, have their particular verdures, but alſo from the change of ſeaſons, and the colour of the earth, when the herbs are but thin ſown. By this variety, a painter may chooſe or unite, in the ſame tract of land, ſeveral ſorts of greens, intermixed and blended together, which are often of great ſervice to thoſe who know how to uſe them; becauſe this diverſity of greens, as it is often found in nature, gives a character of truth to thoſe parts, where it is properly uſed. There is a wonderful example of this part of landſcape, in the view of Mechlin, by Rubens.

Of Rocks. Though rocks have all ſorts of ſhapes, and participate of all colours, yet there are in their diverſity, certain characters which cannot be well expreſſed without having recourſe to nature. Some are in banks, and ſet off with beds of ſhrubs; others in huge blocks, either projecting or falling back; others conſiſt of large broken parts, contiguous to each other; and others, in ſhort, of an enormous ſize, all in one ſtone, either naturally, as free-ſtone, or elſe through the injuries of time, which in the courſe of many ages has worn away their marks of ſeparation. But, whatever their form be, they are uſually ſet out with clefts, breaks, hollows, buſhes, moſs, and the ſtains of time; and theſe particulars, well managed, create a certain idea of truth.

Rocks are of themſelves gloomy, and only proper for ſolitudes: but where accompanied with buſhes, they inſpire a freſh air; and when they have waters, either proceeding from, or waſhing them, they give an infinite pleaſure, and ſeem to have a ſoul which animates them, and makes them ſociable. Landſcapes.

Of Grounds or *Lands*. A ground or land, in painters terms, is a certain diſtinct piece of land, which is neither too woody nor hilly. Grounds contribute, more than any thing, to the gradation and diſtancing of landſcape; becauſe they follow one another, either in ſhape, or in the *claro-obſcuro*, or in their variety of colouring, or by ſome inſenſible conjunction of one with another.

Multiplicity of grounds, though it be often contrary to grand manner, does not quite deſtroy it; for beſides the extent of country which it exhibits, it is ſuſceptible of the accidents we have mentioned, and which, with good management, have a fine effect.

There is one nicety to be obſerved in grounds, which is, that in order to characterize them well, care muſt be taken, that the trees in them have a different verdure and different colours from thoſe grounds; though this difference, withal, muſt not be too apparent.

Of Terraces. A terrace in painting, is a piece of ground, either quite naked or having very little herbage, like great roads and places often frequented. They are of uſe chiefly in the foregrounds of a picture, where they ought to be very ſpacious and open, and accompanied, if we think fit, with ſome accidental verdure, and alſo with ſome ſtones, which, if placed with judgement, give a terrace a greater air of probability.

Of Buildings. Painters mean by buildings any ſtructures they generally repreſent, but chiefly ſuch as are of a regular architecture, or at leaſt are moſt conſpicuous. Thus building is not ſo proper a name for the houſes of country-people, or the cottages of ſhepherds, which are introduced into the *rural* taſte, as for regular and ſhowy edifices, which are always brought into the *heroic*.

Buildings in general are a great ornament in landſcapes, even when they are Gothic, or appear partly inhabited and partly ruinous: they raiſe the imagination by the uſe they are thought to be deſigned for; as appears from ancient towers, which ſeem to have been the habitations of fairies, and are now retreats for ſhepherds and owls.

Pouſſin has very elegantly handled the Roman manner of architecture in his works, as Bourdon has done the Gothic; which, however Gothic, fails not to give a ſublime air to his landſcapes. Little Bernard has introduced into his ſacred hiſtory what may be called a Babylonian manner; which, extraordinary as it is, has its grandeur and magnificence. Nor ought ſuch pieces of architecture to be quite rejected: they raiſe the imagination; and perhaps would ſucceed in the heroic ſtyle, if they were placed among half-diſtant objects, and if we knew how to uſe them properly.

Of Waters. Much of the ſpirit of landſcape is owing to the waters which are introduced in it. They appear in divers manners; ſometimes impetuous, as when a ſtorm makes them overflow their banks; at other times rebounding, as by the fall of a rock; at other times, through unuſual preſſure, guſhing out and dividing into an infinity of ſilver ſtreams, whoſe motion and murmuring agreeably deceive both the eye and ear; at other times calm and purling in a ſandy bed; at other times ſo ſtill and ſtanding, as to become a faithful looking-glaſs, which doubles

Landſcapes. doubles all the objects that are oppoſite to it; and in this ſtate they have more life than in the moſt violent agitation. Conſult Bourdon's works, or at leaſt his prints, on this ſubject: he is one of thoſe who have treated of waters with the greateſt ſpirit and beſt genius.

Waters are not proper for every ſituation: but to expreſs them well, the artiſt ought to be perfect maſter of the exactneſs of watery reflections; becauſe they only make painted water appear as real: for practice alone, without exactneſs, deſtroys the effect, and abates the pleaſure of the eye. The rule for theſe reflections is very eaſy, and therefore the painter is the leſs pardonable for neglecting it.

But it muſt be obſerved, that though water be as a looking-glaſs, yet it does not faithfully repreſent objects but when it is ſtill; for if it be in any motion, either in a natural courſe, or by the driving of the wind, its ſurface becoming uneven, receives on its ſurges ſuch lights and ſhades as, mixing with the appearance of the objects, confound both their ſhapes and colours.

Of the Foreground of a Picture. As it is the part of the foreground to uſher the eye into the piece, great care muſt be taken that the eye meet with good reception; ſometimes by the opening of a fine terrace, whoſe deſign and workmanſhip may be equally curious; ſometimes by a variety of well diſtinguiſhed plants, and thoſe ſometimes flowered; and at other times, by figures in a lively taſte, or other objects, either admirable for their novelty or introduced as by chance.

In a word, the artiſt cannot too much ſtudy his foreground objects, ſince they attract the eye, impreſs the firſt character of truth, and greatly contribute to make the artifice of a picture ſucceſsful, and to anticipate our eſteem for the whole work.

Of Plants. Plants are not always neceſſary in foregrounds, becauſe, as we have obſerved, there are ſeveral ways of making thoſe grounds agreeable. But if we reſolve to draw plants there, we ought to paint them exactly after the life; or at leaſt, among ſuch as we paint practically, there ought to be ſome more finiſhed than the reſt, and whoſe kinds may be diſtinguiſhed by the difference of deſign and colouring, to the end that, by a probable ſuppoſition, they may give the others a character of truth. What has been ſaid here of plants may be applied to the branches and barks of trees.

Of Figures. In compoſing landſcape, the artiſt may have intended to give it a character agreeable to the ſubject he has choſen, and which his figures ought to repreſent. He may alſo, and it commonly happens, have only thought of his figures, after finiſhing his landſcape. The truth is, the figures in moſt landſcapes are made rather to accompany than to ſuit them.

It is true, there are landſcapes ſo diſpoſed and ſituated, as to require only paſſing figures; which ſeveral good maſters, each in his ſtyle, have introduced, as Pouſſin in the heroic, and Fouquier in the rural, with all probability and grace. It is true alſo, that reſting figures have been made to appear inwardly active. And theſe two different ways of treating figures are not to be blamed, becauſe they act equally, though in a different manner. It is rather inaction that ought to be blamed in figures; for in this condition, which robs them of all connection with the landſcape, they appear to be paſted on. But without Landſcapes. obſtructing the painter's liberty in this reſpect, undoubtedly the beſt way to make figures valuable is, to make them ſo to agree with the character of the landſcape, that it may ſeem to have been made purely for the figures. We would not have them either inſipid or indifferent, but to repreſent ſome little ſubject to awaken the ſpectator's attention, or elſe to give the picture a name of diſtinction among the curious.

Great care muſt be taken to proportion the ſize of the figures to the bigneſs of the trees, and other objects of the landſcape. If they be too large, the picture will diſcover a little manner; and if too ſmall, they will have the air of pigmies; which will deſtroy the worth of them, and make the landſcape look enormous. There is, however, a greater inconvenience in making figures too large than too ſmall; becauſe the latter at leaſt gives an air of greatneſs to all the reſt. But as landſcape figures are generally ſmall, they muſt be touched with ſpirit, and ſuch lively figures as will attract, and yet preſerve probability and a general union. The artiſt muſt, in fine, remember, that as the figures chiefly give life to a landſcape, they muſt be diſperſed as conveniently as poſſible.

Of Trees. The beauty of trees is perhaps one of the greateſt ornaments of landſcape; on account of the variety of their kinds, and their freſhneſs, but chiefly their lightneſs, which makes them ſeem, as being expoſed to the air, to be always in motion.

Though diverſity be pleaſing in all the objects of landſcape, it is chiefly in trees that it ſhows its greateſt beauty. Landſcape conſiders both their kinds and their forms. Their kinds require the painter's particular ſtudy and attention, in order to diſtinguiſh them from each other; for we muſt be able at firſt ſight to diſcover which are oaks, elms, firs, ſycamores, poplars, willows, pines, and other ſuch trees, which, by a ſpecific colour, or touching, are diſtinguiſhable from all other kinds. This ſtudy is too large to be acquired in all its extent; and, indeed, few painters have attained ſuch a competent exactneſs in it as their art requires. But it is evident, that thoſe who come neareſt to perfection in it, will make their works infinitely pleaſing, and gain a great name.

Beſides the variety which is found in each kind of tree, there is in all trees a general variety. This is obſerved in the different manners in which their branches are diſpoſed by a ſport of nature; which takes delight in making ſome very vigorous and thick, others more dry and thin; ſome more green, others more red or yellow. The excellence of practice lies in the mixture of theſe varieties: but if the artiſt can diſtinguiſh the ſorts but indifferently, he ought at leaſt to vary their makes and colours; becauſe repetition in landſcape is as tireſome to the eye, as monotony in diſcourſe is to the ear.

The variety of their makes is ſo great, that the painter would be inexcuſable not to put it in practice upon occaſion, eſpecially when he finds it neceſſary to awaken the ſpectator's attention; for, among trees, we diſcover the young and the old, the open and cloſe, tapering and ſquat, bending upwards and downwards, ſtooping and ſhooting: in ſhort, the variety is rather to be conceived than expreſſed. For inſtance, the character of young trees is, to have long ſlender branches, few in number,

but

Landſcapes. but well ſet out; boughs well divided, and the foliage vigorous and well ſhaped: whereas, in old trees, the branches are ſhort, ſtocky, thick, and numerous; the tufts blunt, and the foliage unequal and ill ſhaped; but a little obſervation and genius will make us perfectly ſenſible of theſe particulars.

In the various makes of trees, there muſt alſo be a diſtribution of branches, that has a juſt relation to, and probable connection with, the boughs or tufts, ſo as mutually to aſſiſt each other in giving the tree an appearance of thickneſs and of truth. But, whatever their natures or manners of branching be, let it be remembered, that the handling muſt be lively and thin, in order to preſerve the ſpirit of their characters.

Trees likewiſe vary in their barks, which are commonly gray; but this gray, which in thick air, and low and marſhy places, looks blackiſh, appears lighter in a clear air: and it often happens, in dry places, that the bark gathers a thin moſs, which makes it look quite yellow; ſo that, to make the bark of a tree apparent, the painter may ſuppoſe it to be light upon a dark ground, and dark on a light one.

The obſervation of the different barks merits a particular attention; for it will appear, that, in hard woods, age chaps them, and thereby gives them a ſort of embroidery; and that, in proportion as they grow old, theſe chaps grow more deep. And other accidents in barks may ariſe either from moiſture, or dryneſs, or green moſſes, or white ſtains of ſeveral trees.

The barks of white woods will alſo afford much matter for practice, if their diverſity be duly ſtudied; and this conſideration leads us to ſay ſomething of the ſtudy of landſcape.

Of the Study of Landſcape. The ſtudy of landſcape may be conſidered either with reſpect to beginners, or to thoſe who have made ſome advances in it.

Beginners will find, in practice, that the chief trouble of landſcape lies in handling trees; and it is not only in practice, but alſo in ſpeculation, that trees are the moſt difficult part of landſcape, as they are its greateſt ornament. But it is only propoſed here, to give beginners an idea of trees in general, and to ſhow them how to expreſs them well. It would be needleſs to point out to them the common effects of trees and plants, becauſe they are obvious to every one; yet there are ſome things, which, though not unknown, deſerve our reflection. We know, for inſtance, that all trees require air, ſome more, ſome leſs, as the chief cauſe of their vegetation and production; and for this reaſon, all trees (except the cypreſs, and ſome others of the ſame kind) ſeparate in their growth from one another, and from other ſtrange bodies as much as poſſible, and their branches and foliage do the ſame: wherefore, to give them that air and thinneſs, which is their principal character, the branches, boughs, and foliage, muſt appear to fly from each other, to proceed from oppoſite parts, and be well divided. And all this without order; as if chance aided nature in the fanciful diverſity. But to ſay particularly how theſe trunks, branches, and foliages, ought to be diſtributed, would be needleſs, and only a deſcription of the works of great maſters: a little reflection on nature will be of more ſervice than all that can be ſaid on this head. By great maſters, we mean ſuch as have publiſhed prints; for thoſe will give better ideas to young copyiſts than even the paintings themſelves.

Among the many great maſters of all ſchools, De Piles prefers Titian's wooden prints, where the trees are well ſhaped; and thoſe which Cornelius Cort and Agoſtino Caracci have engraved. And he aſſerts, that beginners can do no better than contract, above all things, an habit of imitating the touches of theſe great maſters, and of conſidering at the ſame time the perſpective of the branches and foliages, and obſerving how they appear, either when riſing and ſeen from below, or when ſinking and ſeen from above, or when fronting and viewed from a point, or when they appear in profile; and, in a word, when ſet in the various views in which nature preſents them, without altering their characters. Landſcapes.

After having ſtudied and copied with the pen or crayon, firſt the prints, and then the deſigns of Titian and Caracci, the ſtudent ſhould imitate with the pencil thoſe touches which they have moſt diſtinctly ſpecified, if their paintings can be procured; but ſince they are ſcarce, others ſhould be got which have a good character for their touching; as thoſe of Foquier, who is a moſt excellent model: Paul Bril, Breugel, and Bourdon, are alſo very good; their touching is neat, lively, and thin.

After having duly weighed the nature of trees, their ſpread and order, and the diſpoſition of their branches, the artiſt muſt get a lively idea of them, in order to keep up the ſpirit of them throughout, either by making them apparent and diſtinct in the fore-grounds, or obſcure and confuſed in proportion to their diſtance.

After having thus gained ſome knowledge in good manner, it will next be proper to ſtudy after nature, and to chooſe and rectify it according to the idea which the aforeſaid great maſters had of it. As to perfection, it can only be expected from long practice and perſeverance. On the whole, it is proper for thoſe who have an inclination for landſcape, above all things to take the proper methods for beginning it well.

As for thoſe who have made ſome advances in this part of painting, it is proper they ſhould collect the neceſſary materials for their further improvement, and ſtudy thoſe objects at leaſt which they ſhall have moſt frequent occaſion to repreſent.

Painters uſually compriſe, under the word *ſtudy*, any thing whatever which they either deſign or paint ſeparately after the life; whether figures, heads, feet, hands, draperies, animals, mountains, trees, plants, flowers, fruits, or whatever may confirm them in the juſt imitation of nature: the drawing of theſe things is what they call *ſtudy*; whether they be for inſtruction in deſign, or only to aſſure them of the truth, and to perfect their work. In fact, this word *ſtudy* is the more properly uſed by painters, as in the diverſity of nature they are daily making new diſcoveries, and confirming themſelves in what they already know.

As the landſcape-painter need only ſtudy ſuch objects as are to be met with in the country, we would recommend to him ſome order, that his drawings may be always at hand when he wants them. For inſtance, he ſhould copy after nature, on ſeparate papers, the different effects of trees in general, and the different effects of each kind in particular, with their trunks, foliage, and colours. He ſhould alſo take the ſame method with ſome ſorts of plants, becauſe their variety is a great ornament to terraces on fore-grounds. He ought likewiſe to ſtudy the effects of the ſky in the ſeveral times of the day

Landſcapes

and ſeaſons of the year, in the various diſpoſitions of clouds, both in ſerene, thundering, and ſtormy weather; and in the offskip, the ſeveral ſorts of rocks, waters, and other principal objects.

Theſe drawings, which may be made at different times, ſhould be collected together; and all that relate to one matter be put into a book, to which the artiſt may have recourſe at any time for what he wants.

Now, if the fine effects of nature, whether in ſhape or colour, whether for an entire picture or a part of one, be the artiſt's ſtudy; and if the difficulty lies in chooſing thoſe effects well, he muſt for this purpoſe be born with good ſenſe, good taſte, and a fine genius; and this genius muſt be cultivated by the obſervations which ought to be made on the works of the beſt maſters, how they chooſe nature, and how, while they corrected her, according to their art, they preſerved her character. With theſe advantages, derived from nature and perfected by art, the painter cannot fail to make a good choice; and, by diſtinguiſhing between the good and the bad, muſt needs find great inſtruction even from the moſt common things.

To improve themſelves in this kind of ſtudies, painters have taken ſeveral methods.

There are ſome artiſts who have deſigned after nature, and in the open fields; and have there quite finiſhed thoſe parts which they had choſen, but without adding any colour to them.

Others have drawn, in oil colours, in a middle tint, on ſtrong paper; and found this method convenient, becauſe, the colours ſinking, they could put colour on colour, though different from each other. For this purpoſe they took with them a flat box, which commodiouſly held their pallet, pencils, oil, and colours. This method, which indeed requires ſeveral implements, is doubtleſs the beſt for drawing nature more particularly, and with greater exactneſs, eſpecially if, after the work be dry and varniſhed, the artiſt return to the place where he drew, and retouch the principal things after nature.

Others have only drawn the outlines of objects, and ſlightly waſhed them in colours near the life, for the eaſe of their memory. Others have attentively obſerved ſuch parts as they had a mind to retain, and contented themſelves with committing them to their memory, which upon occaſion gave them a faithful account of them. Others have made drawings in paſtil and waſh together. Others, with more curioſity and patience, have gone ſeveral times to the places which were to their taſte: the firſt time they only made choice of the parts, and drew them correctly; and the other times were ſpent in obſerving the variety of colouring, and its alterations through change of light.

Now theſe ſeveral methods are very good, and each may be practiſed as beſt ſuits the ſtudent and his temper: but they require the neceſſaries of painting, as colours, pencils, paſtils, and leiſure. Nature, however, at certain times, preſents extraordinary but tranſient beauties, and ſuch as can be of no ſervice to the artiſt who has not as much time as is neceſſary to imitate what he admires. The beſt way, perhaps, to make advantage of ſuch momentary occaſions, is this:

The painter being provided with a quire of paper, and a black-lead pencil, let him quickly, but ſlightly, deſign what he ſees extraordinary; and to remember the colouring, let him mark the principal parts with characters, which he may explain at the bottom of the paper, as far as is neceſſary for himſelf to underſtand them: A cloud, for inſtance, may be marked A, another cloud B, a light C, a mountain D, a terrace E, and ſo on. And having repeated theſe letters at the bottom of the paper, let him write againſt each that it is of ſuch or ſuch a colour; or, for greater brevity, only *blue*, *red*, *violet*, *gray*, &c. or any other ſhorter abbreviation. After this, he muſt go to painting as ſoon as poſſible; otherwiſe moſt of what he has obſerved will, in a little time, ſlip out of his memory. This method is the more uſeful, as it not only prevents our loſing an infinity of ſudden and tranſitory beauties, but alſo helps, by means of the aforeſaid marks and characters, to perfect the other methods we have mentioned. Landſcapes.

If it be aſked, Which is the propereſt time for theſe ſtudies? the anſwer is, That nature ſhould be ſtudied at all times, becauſe ſhe is to be repreſented at all ſeaſons; but autumn yields the moſt plentiful harveſt for her fine effects: the mildneſs of that ſeaſon, the beauty of the ſky, the richneſs of the earth, and the variety of objects, are powerful inducements with the painter to make the proper inquiries for improving his genius and perfecting his art.

But as we cannot ſee or obſerve every thing, it is very commendable to make uſe of other men's ſtudies, and to look upon them as if they were our own. Raphael ſent ſome young men into Greece to deſign ſuch things as he thought would be of ſervice to him, and accordingly made uſe of them to as good purpoſe as if he himſelf had deſigned them on the ſpot: for this, Raphael is ſo far from deſerving cenſure, that he ought, on the contrary, to be commended; as an example, that painters ought to leave no way untried for improving in their profeſſions. The landſcape painter may, accordingly, make uſe of the works of all thoſe who have excelled in any kind, in order to acquire a good manner; like the bees which gather their variety of honey from different flowers.

General Remarks on Landſcapes. As the general rules of painting are the baſis of all the ſeveral kinds of it, we muſt refer the landſcape painter to them, or rather ſuppoſe him to be well acquainted with them. We ſhall here only make ſome general remarks on this kind of painting.

I. Landſcape ſuppoſes the knowledge and practice of the principal rules in *perſpective*, in order to maintain probability.

II. The nigher the leaves of trees are to the earth, the larger they are, and the greener; as being apteſt to receive, in abundance, the ſap which nouriſhes them: and the upper branches begin firſt to take the redneſs or yellowneſs which colours them in autumn. But it is otherwiſe in plants; for their ſtocks renew all the year round, and their leaves ſucceed one another at a conſiderable diſtance of time, inſomuch that nature, employed in producing new leaves to adorn the ſtock as it riſes, does by degrees deſert the under ones; which, having firſt performed their office, are the firſt that die: but this effect is more viſible in ſome than in others.

III. The under parts of all leaves are of a brighter green than the upper, and almoſt always incline to the

Landſcapes

ſilveriſh; and thoſe which are wind-ſhaken are known from others by that colour: but if we view them from beneath, when penetrated by the ſun's rays, they diſcover ſuch a fine and lively green as is far beyond all compariſon.

IV. There are five principal things which give ſpirit to landſcape, viz. figures, animals, waters, wind-ſhaken trees, and thinneſs of pencilling; to which add ſmoke, when there is occaſion to introduce it.

V. When one colour predominates throughout a landſcape, as one green in ſpring, or one red in autumn, the piece will look either as of one colour, or elſe as unfiniſhed. We have ſeen many of Bourdon's landſcapes, which, by handling the corn one way throughout, have loſt much of their beauty, though the ſituations and waters were very pleaſant. The ingenious painter muſt endeavour to correct, and, as they ſay, redeem the harſh unſightly colouring of winter and ſpring by means of figures, waters, and buildings; for ſummer and autumn ſubjects are of themſelves capable of great variety.

VI. Titian and Carrache are the beſt models for inſpiring good taſte, and leading the painter into a good track, with regard to forms and colours. He muſt uſe all his efforts, to gain a juſt idea of the principles which thoſe great men have left us in their works; and to have his imagination filled with them, if he would advance by degrees towards that perfection which the artiſt ſhould have always in view.

VII. The landſcapes of theſe two maſters teach us a great many things, of which diſcourſe can give us no exact idea, nor any general principle. Which way, for example, can the meaſures of trees in general be determined, as we determine thoſe of the human body? The tree has no ſettled proportions; moſt of its beauty lies in the contraſt of its branches, an unequal diſtribution of boughs, and, in ſhort, a kind of whimſical variety, which nature delights in, and of which the painter becomes a judge when he has thoroughly reliſhed the works of the two maſters aforeſaid. But we muſt ſay, in Titian's praiſe, that the path he ſtruck out is the fureſt; becauſe he has exactly imitated nature in its variety with an exquiſite taſte, and fine colouring: whereas Carrache, though an able artiſt, has not, more than others, been free from manner in his landſcapes.

VIII. One of the greateſt perfections of landſcape, in the variety it repreſents, is a faithful imitation of each particular character: as its greateſt fault is a licentious practice, which brings us to do things by rote.

IX. Among thoſe things which are painted practically, we ought to intermix ſome done after nature, to induce the ſpectator to believe that all are ſo.

X. As there are ſtyles of thought, ſo there are alſo ſtyles of execution. We have handled the two relating to thought, viz. the heroic and paſtoral; and find that there are two alſo with regard to execution, viz. the firm ſtyle, and the poliſhed; theſe two concern the pencil, and the more or leſs ingenious way of conducting it. The firm ſtyle gives life to work, and excuſe for bad choice; and the poliſhed finiſhes and brightens every thing; it leaves no employment for the ſpectator's imagination, which pleaſes itſelf in diſcovering and finiſhing things which it aſcribes to the artiſt, though in fact they proceed only from itſelf. The poliſhed ſtyle degenerates into the ſoft and dull, if not ſupported by a good opening or ſituation; but when thoſe two characters meet, the picture is fine.

Portraiture.

Sect. III. *Of Portraiture.*

If painting be an imitation of nature, it is doubly ſo in a portrait; which not only repreſents a man in general, but ſuch a one as may be diſtinguiſhed from all others. And as the greateſt perfection of a portrait is extreme likeneſs, ſo the greateſt of its faults is to reſemble a perſon for whom it was not made; ſince there are not in the world two perſons quite like one another. But before we proceed to the particulars which let us into the knowledge of this imitation, it is neceſſary, for ſhortening this part of our ſubject, to attend to ſome general propoſitions.

I. Imitation is the eſſence of painting: and good choice is to this eſſence what the virtues are to a man; they raiſe the value of it. For this reaſon, it is extremely the painter's intereſt to chooſe none but good heads, or favourable moments for drawing them, and ſuch poſitions as may ſupply the want of a fine natural.

II. There are views of the natural more or leſs advantageous; all depends upon turning it well, and taking it in the favourable moment.

III. There is not a ſingle perſon in the world who has not a peculiar character both in body and face.

IV. Simple and genuine nature is more proper for imitation; and is a better choice than nature much formed, and embelliſhed too artificially.

V. To adorn nature too much is doing it a violence; and the action which attends it can never be free when its ornaments are not eaſy. In ſhort, in proportion as we adorn nature, we make it degenerate from itſelf, and bring it down to art.

VI. Some means are more advantageous than others to come at the ſame end.

VII. We muſt not only imitate what we do ſee in nature, but alſo what we may poſſibly ſee that is advantageous in art.

VIII. Things are valuable by compariſon; and it is only by this we are enabled to make a right judgement of them.

IX. Painters eaſily accuſtom themſelves to their own tints, and the manner of their maſters: and after this habit is rooted in them, they view nature not as ſhe really is, but as they are uſed to paint her.

X. It is very difficult to make a picture, the figures of which are as big as the life, to have its effect near as at a diſtance. A learned picture pleaſes the ignorant only when it is at ſome diſtance; but judges will admire its artifice near, and its effect at a diſtance.

XI. Knowledge makes work pleaſant and eaſy. The traveller who knows his road, comes to his journey's end with more ſpeed and certainty than he who inquires and gropes it out.

XII. It is proper, before we begin a work, to meditate upon it, and to make a nice coloured ſketch of it, for our own ſatisfaction, and a help to the memory.

We cannot too much reflect on theſe propoſitions; and

it

Portraiture. it is neceſſary to be well acquainted with them, that they many preſent themſelves to our mind, of their own accord, without our being at the trouble to recal them to our memory when we are at work.

There are four things neceſſary to make a portrait perfect; *air*, *colouring*, *attitude*, and *dreſs*.

Of Air. The air reſpects the lines of the face, the head attire, and the ſize.

The lines of the face depend upon exactneſs of draught, and agreement of the parts; which all together muſt repreſent the phyſiognomy of the perſon painted in ſuch a manner, that the picture of his body may ſeem to be alſo that of his mind.

It is not exactneſs of deſign in portraits that gives ſpirit and true air, ſo much as the agreement of the parts at the very moment when the diſpoſition and temperament of the ſitter are to be hit off. We ſee ſeveral portraits which, though correctly deſigned, have a cold, languiſhing, and ſtupid air; whilſt others, leſs correct in deſign, ſtrike us, however, at firſt ſight with the ſitter's character.

Few painters have been careful enough to put the parts well together: Sometimes the mouth is ſmiling, and the eyes are ſad; at other times, the eyes are cheerful, and the cheeks lank: by which means their work has a falſe air, and looks unnatural. We ought therefore to remember, that, when the ſitter puts on a ſmiling air, the eyes cloſe, the corners of the mouth draw up towards the noſtrils, the cheeks ſwell, and the eyebrows widen: but in a melancholy air, theſe parts have a contrary effect.

The eyebrows, being raiſed, give a grave and noble air; but if arched, an air of aſtoniſhment.

Of all the parts of the face, that which contributes moſt to likeneſs is the noſe; it is therefore of great moment to ſet and draw it well.

Though the hair of the head ſeems to be part of the dreſs, which is capable of various forms without altering the air of the face; yet the head attire which one has been moſt accuſtomed to creates ſuch a likeneſs, that we ſcarce know a familiar acquantance on his putting on a periwig ſomewhat different from that which he uſed to wear. It is neceſſary therefore, as far as poſſible, to take the air of the head ornament, and make it accompany and ſet off that of the face, if there be no reaſon to the contrary.

As to the ſtature, it contributes ſo much to likeneſs, that we very often know people without ſeeing their face: It is therefore extremely proper to draw the ſize after the ſitter himſelf, and in ſuch an attitude as we think fit; which was Vandyke's method. Here let us remark, that, in ſitting, the perſon appears to be of a leſs free make, through the heaving of his ſhoulders; wherefore, to adjuſt his ſize, it is proper to make him ſtand for a ſmall time, ſwaying in the poſture we would give him, and then make our obſervation. But here occurs a difficulty, which we ſhall endeavour to examine: "Whether it is proper, in portraiture, to correct the defects of nature?"

Likeneſs being the eſſence of portraiture, it would ſeem that we ought to imitate defects as well as beauties, ſince by this means the imitation will be more complete: It would be even hard to prove the contrary to one who would undertake the defence of this poſition. But ladies and gentlemen do not much approve of thoſe painters who entertain ſuch ſentiments, and put them in practice. It is certain that ſome complaiſance in this reſpect is due to them; and there is little doubt but their pictures may be made to reſemble, without diſpleaſing them; for the effectual likeneſs is a juſt agreement of the parts that are painted with thoſe of nature; ſo that we may be at no loſs to know the air of the face, and the temper of the perſon, whoſe picture is before us. All deformities, therefore, when the air and temper may be diſcovered without them, ought to be either corrected or omitted in women's and young men's portraits. A noſe ſomewhat awry may be helped, or a ſhrivelled neck or high ſhoulders adapted to a good air, without going from one extreme to another. But this muſt be done with great diſcretion: for, by endeavouring to correct nature too much, we inſenſibly fall into a method of giving a general air to all our portraits; juſt as, by confining ourſelves too much to the defects and littleneſs of nature, we are in danger of falling into the low and taſteleſs manner. Colouring.

But in the faces of heroes and men of rank, diſtinguiſhed either by dignities, virtues, or great qualities, we cannot be too exact, whether the parts be beautiful or not: for portraits of ſuch perſons are to be ſtanding monuments to poſterity; in which caſe, every thing in a picture is precious that is faithful. But after whatever manner the painter acquits himſelf in this point, let him never forget good air nor grace; and that there are, in the natural, advantageous moments for hitting them off.

Of Colouring.—Colouring, in portraiture, is an effuſion of nature, diſcovering the true tempers of perſons; and the temper being eſſential to likeneſs, it ought to be handled as exactly as the deſign. This part is the more valuable, as it is rare and difficult to hit. A great many painters have come to a likeneſs by ſtrokes and outlines; but certainly they are few who have ſhown in colours the tempers of perſons.

Two points are neceſſary in colouring; exactneſs of tints, and the art of ſetting them off. The former is acquired by practice, in examining and comparing the colours we ſee in life with thoſe by which we would imitate it: and the art of thoſe tints conſiſts in knowing what one colour will produce when ſet by another, and in making good what either diſtance or time may abate of the glow and freſhneſs of the colours.

A painter who does nothing more than what he ſees, will never arrive at a perfect imitation; for though his work may ſeem, on the eaſel, to be good to him, it may not appear ſo to others, and perhaps even to himſelf, at a diſtance. A tint which, near, appears disjoined, and of one colour, may look of another at a diſtance, and be confounded in the maſs it belongs to. If you would have your work, therefore, to produce a good effect in the place where it is to hang, both the colours and lights muſt be a little loaded; but learnedly, and with diſcretion. In this point conſult Titian, Rubens, Vandyke, and Rembrandt's method; for indeed their art is wonderful.

The tints uſually require three times of obſervation. The firſt is at the perſon's firſt ſitting down, when he has more ſpirit and colour than ordinary; and this is to be noted in the firſt hour of his ſitting. The ſecond is when, being compoſed, his look is as uſual; which is to be obſerved in the ſecond hour. And the third is when,

Attitude. when, through tireſomeneſs by ſitting in one poſture, his colour alters to what wearineſs uſually creates. On which account, it is beſt to keep to the ſitter's uſual tint, a little improved. He may alſo riſe, and take ſome turns about the room, to gain freſh ſpirits, and ſhake off or prevent tireſomeneſs.

In *draperies*, all ſorts of colours do not ſuit all ſorts of perſons. In men's portraits, we need only obſerve great truth and great force: but in women's there muſt alſo be charms; whatever beauty they have muſt appear in a fine light, and their blemiſhes muſt by ſome means or other be ſoftened. For this reaſon, a white, lively, and bright tint, ought never to be ſet off by a fine yellow, which would make it look like plaſter; but rather by colours inclining to green, blue, or gray, or ſuch others as, by the oppoſition, may make the tint appear more fleſhy than uſual in fair women. Vandyke often made a fillemot coloured curtain for his ground; but that colour is ſoft and brown. Brown women, on the other hand, who have yellow enough in their tints to ſupport the character of fleſhineſs, may very well have yellowiſh draperies, in order to bring down the yellow of their tints, and make them look the freſher; and near very high coloured and lively carnations linen does wonders.

In *grounds*, two things are obſervable; the tone and the colour. The colour is to be conſidered in the ſame manner as thoſe of draperies, with reſpect to the head. The tone muſt be always different from the maſs it ſupports, and of which it is the ground, that the objects coming upon it may not ſeem tranſparent, but ſolid and raiſed. The colour of the hair of the head uſually determines the tone of the ground; and when the former is a bright cheſnut, we are often embarraſſed, unleſs helped by means of a curtain, or ſome accident of the claro obſcuro, ſuppoſed to be behind, or unleſs the ground is a ſky.

We muſt further obſerve, that where a ground is neither curtain nor landſcape, or ſuch like, but is plain and like a wall, it ought to be very much party-coloured, with almoſt imperceptible patches or ſtains; for, beſides its being ſo in nature, the picture will look the more grand.

Of Attitude, or *Poſture*.—Attitudes ought to ſuit the age and qualities of perſons and their tempers. In old men and women, they ſhould be grave, majeſtic, and ſometimes bold: and generally, in women, they ought to have a noble ſimplicity and modeſt cheerfulneſs; for modeſty ought to be the character of women; a charm infinitely beyond coquetry! and indeed coquettes themſelves are not to be painted ſuch.

Attitudes are of two kinds: one in motion, the other at reſt. Thoſe at reſt may ſuit every perſon: but thoſe in motion are proper for young people only, and are hard to be expreſſed; becauſe a great part of the hair and drapery muſt be moved by the air; motion, in painting, being never better expreſſed than by ſuch agitations. The attitudes at reſt muſt not appear ſo much at reſt as to ſeem to repreſent an inactive perſon, and one who ſits for no other purpoſe but to be a copy. And though the figure that is repreſented be at reſt, yet the painter, if he thinks fit, may give it a flying drapery, provided the ſcene or ground be not a chamber or cloſe place.

It is above all things neceſſary that the figures which are not employed ſhould appear to ſatisfy the ſpectator's curioſity; and for this purpoſe ſhow themſelves in ſuch an action as ſuits their tempers and conditions, as if they would inform him what they really were: and as moſt people pretend to ſincerity, honeſty, and greatneſs of mind, we muſt avoid in attitudes, all manner of affectation; every thing there muſt appear eaſy and natural, and diſcover more or leſs ſpirit, nobleneſs, and majeſty, in proportion to the perſon's character and dignity. In a word, the attitudes are the language of portraits; and the ſkilful painter ought to give great attention to them.

But the beſt attitudes are ſuch as induce the ſpectator to think that the ſitter took a favourable opportunity of being ſeen to advantage, and without affectation. There is only one thing to be obſerved with regard to women's portraits, in whatever attitude they are placed; which is, that they ſway in ſuch a manner as to give their face but little ſhade; and that we carefully examine whether the lady appear moſt beautiful in a ſmiling or in a ſerious air, and conduct ourſelves accordingly. Let us now proceed to the next article.

Practice in Portraiture.

Of Practice in Portraiture.—According to De Piles, portraiture requires three different ſittings and operations; viz. dead colouring, ſecond colouring, and retouching or finiſhing. Before the painter dead colour, he muſt attentively conſider what aſpect will beſt ſuit the ſitter, by putting him in different poſitions, if we have not any ſettled deſign before us: and when we have determined this, it is of the laſt conſequence to put the parts well together, by comparing always one part with another; for not only the portrait acquires a greater likeneſs when well deſigned, but it is troubleſome to make alterations at the ſecond ſitting, when the artiſt muſt only think of painting, that is, of diſpoſing and uniting his colours.

Experience tells us, that the dead colouring ought to be clean, becauſe of the ſlope and tranſparency of the colours, eſpecially in the ſhades: and when the parts are well put together, and become clammy, they muſt be judiciouſly ſweetened and melted into each other; yet without taking away the air of the picture, that the painter may have the pleaſure of finiſhing it, in proportion as he draws. But if fiery geniuſes do not like this method of ſcumbling, let them only mark the parts ſlightly, and ſo far as is neceſſary for giving an air.

In dead colouring, it is proper to put in rather too little than too much hair about the forehead; that, in finiſhing, we may be at liberty to place it where we pleaſe, and to paint it with all poſſible ſoftneſs and delicacy. If, on the contrary, you ſketch upon the forehead a lock which may appear to be of a good taſte, and becoming the work, you may be puzzled in finiſhing it, and not find the life exactly in the ſame poſition as you would paint it. But this obſervation is not meant for men of ſkill and conſummate experience, who have nature in their heads, and make her ſubmit to their ideas.

The buſineſs of the ſecond ſitting is, to put the colours well in their places, and to paint them in a manner that is ſuitable to the ſitter and to the effect we propoſe: But before they are made clammy, we ought to examine afreſh whether the parts are rightly placed,

and

Practice of Vandyke.

and here and there to give ſome touches towards likeneſs, that, when we are aſſured of it, the work may go on with greater ſatisfaction. If the painter underſtands what he is about, and the portrait be juſtly deſigned, he ought as much as poſſible to work quick; the ſitter will be better pleaſed, and the work will by this means have the more ſpirit and life. But this readineſs is only the effect of long ſtudy and experience; for we may well be allowed a conſiderable time to find out a road that is eaſy, and ſuch as we muſt often travel in.

Before we retouch or finiſh, it is proper to terminate the hair, that, on finiſhing the carnations, we may be abler to judge of the effect of the whole head.

If, at the ſecond ſitting, we cannot do all we intended, which often happens, the third makes up the loſs, and gives both ſpirit, phyſiognomy, and character.

If we would paint a portrait at once, we muſt load the colouring; but neither ſweeten, nor drive, nor very much oil it: and if we dip the pencil in varniſh as the work advances, this will readily enable us to put colour on colour, and to mix them without driving.

The uſe and ſight of good pictures give greater light into things than words can expreſs: What hits one artiſt's underſtanding and temper may be diſagreeable to another's; and almoſt all painters have taken different ways, though their principles were often the ſame.

We are told that a friend of Vandyke's having obſerved to him how little time he beſtowed on his portraits, Vandyke anſwered, "That at firſt he worked hard, and took great pains, to acquire a reputation, and alſo to get a ſwift hand, againſt the time he ſhould work for his kitchen." Vandyke's cuſtom is ſaid to have been this: He appointed both the day and hour for the perſon's ſitting, and worked not above an hour on any portrait, either in rubbing in or finiſhing; ſo that as ſoon as his clock informed him that the hour was out, he roſe up, and made a bow to the ſitter, to ſignify, that he had done enough for that day, and then appointed another hour ſome other day; whereupon his ſervant came to clean his pencils, and brought a freſh pallet, whilſt he was receiving another ſitter, whoſe day and hour he had before appointed. By this method he worked on ſeveral pictures the ſame day, with extraordinary expedition.

After having lightly dead-coloured the face, he put the ſitter into ſome attitude which he had before contrived; and on a gray paper, with white and black crayons, he deſigned, in a quarter of an hour, his ſhape and drapery, which he diſpoſed in a grand manner, and an exquiſite taſte. After this, he gave the drawing to the ſkilful people he had about him, to paint after the ſitter's own clothes, which, at Vandyke's requeſt, were ſent to him for that purpoſe. When his diſciples had done what they could to theſe draperies, he lightly went over them again; and ſo, in a little time, by his great knowledge, diſplayed the art and truth which we at this day admire in them. As for hands, he had in his houſe people of both ſexes, whom he paid, and who ſerved as models.

This conduct of Vandyke, however, is mentioned rather to gratify the reader's curioſity, than to excite his imitation; he may chooſe as much of it as he pleaſes, and as ſuits his own genius, and leave the reſt.

Judgement of Tints.

We muſt obſerve by the way, that there is nothing ſo rare as fine hands, either in the deſign or colouring. It is therefore convenient to cultivate, if we can, a friendſhip with ſome woman who will take pleaſure in ſerving for a copy: The way to win them is, to praiſe their beauty exceedingly. But if an opportunity ſerves of copying hands after Vandyke, it muſt not be let ſlip; for he drew them with a ſurpriſing delicacy, and an admirable colouring.

It is of great ſervice to copy after the manners which come neareſt to nature; as are thoſe of Titian and Vandyke. We muſt, at ſuch times, believe them to be nature itſelf; and, at ſome diſtance, conſider them as ſuch, and ſay to ourſelves—*What colour and tint ſhall I uſe for ſuch a part?* And then, coming near the picture, we ought to examine whether we are right or not; and to make a fixed rule of what we have diſcovered, and did not practiſe before without uncertainty.

It is recommended, before we begin colouring, to catch the very firſt moments, which are commonly the moſt agreeable and moſt advantageous, and to keep them in our memory for uſe when we are finiſhing: for the ſitter, growing tired with being long in the ſame place, loſes thoſe ſpirits, which, at his firſt ſitting down, gave beauty to the parts, and conveyed to the tint more lively blood, and a freſher colour. In ſhort, we muſt join to truth a probable and advantageous poſſibility, which, far from abating likeneſs, ſerves rather to ſet it off. For this end, we ought to begin with obſerving the ground of a tint, as well what it is in lights as in ſhades; for the ſhades are only beautiful as they are proportioned to the light. We muſt obſerve, if the tint be very lively, whether it partake of yellowneſs, and where that yellowneſs is placed; becauſe uſually, towards the end of the ſitting, fatigue diffuſes a general yellowneſs, which makes us forget what parts were of this colour, and what were not, unleſs we had taken due notice of it before. For this reaſon, at the ſecond ſitting, the colours muſt be everywhere readily clapped in, and ſuch as appear at the firſt ſitting down; for theſe are always the fineſt.

The ſureſt way to judge of colours is by compariſon; and to know a tint, nothing is better than to compare it with linen placed next it, or elſe placed next to the natural object, if there be occaſion.—We ſay this only to thoſe who have little practiſed nature.

The portrait being now ſuppoſed to be as much finiſhed as you are able, nothing remains, but, at ſome reaſonable diſtance, to view both the picture and ſitter together, in order to determine with certainty, whether there is any thing ſtill wanting to perfect the work.

Sect. IV. *Of Theatrical Decorations; the Deſigns for Furniture, Embroidery, Carriages, &c.*

Of Theatrical Decorations.—This is a particular art, which unites ſeveral of the general parts of painting with the knowledge of architecture, perſpective, &c. They

Theatrical Decorations, &c.

They who apply themſelves to it would do well to deſign their decorations by day, and to colour them by candle light, as they will be much better able to judge of the effect of a painting intended to be viewed by that light. It is proper alſo to caution the young painter to avoid, as much as poſſible, the uniting the imitations of nature with nature itſelf; that is, he ſhould not introduce with his decorations living horſes, or other animals, real fountains or caſcades, trees, or ſtatues, &c. For ſuch combinations are the effect of ignorance and a bad taſte; they are the reſource of painters of little ability; they diſcover a ſterility of invention, and produce great inconvenience in the repreſentation. Thoſe pieces which they call moving pictures, where the painted landſcape remains immoveable, and the figures move by means of ſprings, form a part of theſe decorations; and there are ſome of them, as thoſe of Antwerp and Ghent, that have a pleaſing effect.

The deſigns for *furniture*, *carriages*, *porcelain*, and other branches of manufacture, form alſo a very important article of painting in general, and of academy painting in particular. This is a diſtinct branch of the art; and without doubt not the leaſt uſeful of its parts, as it concurs ſo eſſentially to the ſucceſs of manufactures, and conſequently to the proſperity of a ſtate: and it is an art, to which it were much to be wiſhed that youth of ability and invention would apply themſelves. See the articles JAPANNING and PORCELAIN.

SECT. V. *Enumeration of the different Methods of Painting, or the different Means and Materials that Painters make uſe of to imitate all viſible Objects on a plane Superficies.*

THOSE now in practice are,

1. Painting in OIL; which is preferable to all other methods, as it is more ſuſceptible of all ſorts of expreſſions, of more perfect gradations of colours, and is at the ſame time more durable.

2. MOSAIC painting; an invention truly wonderful. It is compoſed of a great number of ſmall pieces of marble of different colours, joined together with ſtucco. The works of this kind are made principally at Rome, where this art has been carried ſo far as to reſemble the paintings of the greateſt maſters; and of theſe are made monuments for the lateſt poſterity.

3. Painting in FRESCO, which is by drawing, with colours diluted with water, on a wall newly plaſtered, and with which they ſo incorporate, that they periſh only with the ſtucco itſelf. This is principally uſed on ceilings.

4. Painting in WATER COLOURS; that is, with colours mixed with water and gum, or paſte, &c.

5. MINIATURE painting; which differs from the preceding as it repreſents objects in the leaſt diſcernible magnitudes.

6. Painting in CRAYONS; for which purpoſe colours, either ſimple or compound, are mixed with gum, and made into a kind of hard paſte like chalk, and with which they draw on paper or parchment.

7. Painting in ENAMEL; which is done on copper or gold, with mineral colours that are dried by fire, and become very durable. The paintings on the PORCELAIN of China and Europe, on Delft ware, &c. are ſo many ſorts of enamel.

Freſco.

8. Painting in WAX, or ENCAUSTIC painting: This is a new, or rather an old invention renewed, in which there are in France performances highly pleaſing. It is done with wax mixed with varniſh and colours.

9. Painting on GLASS; of which there are various kinds.

See all the articles here enumerated, explained in the order of the alphabet. On one of them, however, ſome additional obſervations may here be ſubjoined.

§ 1. *Of Painting in Freſco.*

OF all kinds of painting, freſco is the moſt ancient, the moſt durable, the moſt ſpeedily executed, and the moſt proper to adorn great buildings. It appears, that the fragments of ancient painting handed down to us by the Romans are all in freſco. Norden, quoted by Winkleman, ſpeaks of the ruins of Egyptian palaces and temples, in which are coloſſal paintings on walls 80 feet high. The deſcription which thoſe authors have given of theſe paintings, of the prepared groun , and of the manner in which the colours have been employed, &c. ſhows plainly that they have been executed in freſco.

The ſtability of freſco is demonſtrated by the exiſtence of thoſe fragments of the higheſt antiquity. There are no other kinds of painting which could equally have reſiſted the injuries of the weather, the exceſſive aridity of certain climates, the moiſture of ſubterraneous ſituations, and the encroachments of barbarians.

There are different opinions concerning the climate moſt proper to preſerve this kind of painting. "It is obſerved (ſays Felibien), that the colours in *freſco* fade ſooner in Italy and Languedoc than at Paris; perhaps from leſs heat in the laſt mentioned place, or better lime." M. Falconet contradicts this aſſertion in his notes on Pliny, vol. i. p. 223. of his miſcellaneous works, publiſhed at Paris 1787. Painting in freſco, according to this author, is longer preſerved in dry and warm, than in northern and moiſt climates. However oppoſite the ſentiments of theſe two authors may appear to be, it is poſſible to reconcile them, when we conſider, that the expoſure to a burning ſun is capable of operating a great change of the colours on the one hand, and that the froſt in a cold climate inevitably deſtroys the paintings of freſco on the other. Froſt is capable of burſting ſtones, of corroding the petrified veins of earth in the heart of coloured marble, and, in ſhort, nothing can reſiſt its deſtructive operation.

Theſe obſervations on freſco paintings lead us to conclude, that the choice of place, when they are without doors, is of the greateſt importance. In countries where there is little or no froſt, an expoſure to the north is the moſt favourable; and in cold climates a weſtern expoſure ſhould be made choice of, becauſe the firſt rays of the riſing ſun have a very pernicious effect after froſt. We are not, however, wholly to adopt the ſentiment of M. Falconet with regard to the pernicious effects of moiſture on freſco paintings: for, 1. The ancient paintings recovered from moiſt places, in which they were buried for many ages, have, under enormous heaps of earth, preſerved all their colours. Thoſe from the ruins of Herculaneum have been ob-

Freſco

ſerved, on the contrary, to loſe their colours in a ſhort time after they have been dried by the exterior air. 2. The mortar which compoſes the ground of this painting is not deſtroyed in our rainy climates. It is neceſſary frequently to uſe powder in removing pieces of this mortar, which are now found to obſtruct ſome buildings in Paris.

After the choice of place, the choice of materials is the next thing of importance in executing freſco. To make it durable, the ground is the object of chief attention; and to make this perfect, the mortar uſed by the ancients, now unknown, would be neceſſary.

It is eaſy to perceive, that a minute detail of forms, an extenſive mixture and gradation of tints, and the merit of a delicate and gentle touch, can make no part of the excellencies of this kind of painting. It cannot bear a cloſe examination like a picture in oil. There is always ſomething dry and rough which diſpleaſes. An artiſt who would flatter himſelf with ſucceſs in a freſco placed near the eye would be groſsly deceived: a common ſpectator would find it coarſe and badly finiſhed.

Freſco is chiefly employed in palaces, temples, and public edifices. In theſe vaſt places no kind of painting can be preferred to it; large, vivid in its ſtrokes, and conſtantly freſh, it enriches the architecture, animates it, and gives relief to the eye from the repetition of the ſame forms, and the monotony of colour in a place where coloured marbles and bronzes are not employed. Still more a fine freſco gives the greateſt effect to a lofty building, ſince this building ſerves as a frame and ſupport to this enchanting art, which fixes the attention of every perſon of ſenſibility and taſte.

We ſhall afterwards have occaſion to ſhow the manner of executing freſco, as well as the nature and application of the colours employed in it: it is neceſſary to demonſtrate here, that it has a freſhneſs, ſplendour, and vigour not to be found in oil or water colours.

A known principle in all kinds of painting is, that the colouring is more perfect in proportion as it approaches to the lights and ſhades in nature. As colours applied to any ſubject can never reach this degree of perfection, the illuſion which painters produce conſiſts in the compariſon and oppoſition of the tones of colours among themſelves.

If the white of the fineſt and pureſt oil appears heavy and gray, compared with great lights in natural whites, it follows, that, in order to copy them with fidelity, the tones which follow the firſt white muſt be degraded in an exact proportion. Thus it is neceſſary that the ſhades of a picture be conſiderably deeper than thoſe of the model; eſpecially if, from the greateſt lights to the browns, one hath proportionally followed the diſtance which is found between the colours on the pallet and the tones of the object copied.

Now if the white of freſco be infinitely more bright than that of oil, the ſame effect will be obtained in a brown tone. On the other ſide, if it conſtantly happens that the brown tones of freſco are much more vigorous than thoſe of water colours, and equal even to the browns of oil itſelf, it is certain that it poſſeſſes a ſplendour and vigour more extenſive than any other kind of painting. Thus in the hands of an artiſt who is well acquainted with the colours fit for freſco, it is more ſuſceptible of the general effect, and more capable than any other kind, of giving projection and the ſemblance of life to the figures. Freſco.

If we were to inquire why painting in freſco is now ſcarcely or never practiſed, we ſhould perhaps aſcribe it to the great talents required to execute it. "Many of our painters (ſays Vaſari in his Treatiſe on Painting) excel in oil or water colours, and yet fail in freſco; becauſe of all kinds this requires the greateſt ſtrength of genius, boldneſs in the ſtrokes, and reſolution." If in an age abounding in great maſters, it was difficult to excel in this kind, it muſt be much more ſo in ours; but we ſhould not require the characters of ſublimity and ſtyle to which men were accuſtomed in the time of Vaſari.

We ſhould execute in freſco as we do in oils; for Italy herſelf, along with Michael Angelo and Zuicharo, had Cortonni Giardano and Franciſchini as middling freſco painters. And in France, Lafoſſe, Bon-Boulogne, and Perur, performed ſeveral works in freſco which might be imitated by the painters of our times. But let us proceed to the real cauſes for abandoning this art. Theſe proceed from the want of knowledge and taſte in the perſons who employ the artiſts, and from the manners of the age. As a pleaſant or licentious conceit, unfiniſhed colouring, and bold effects of ſhade, are the chief objects of conſideration, a very ſmooth painting enlivened by gentle touches completely gratifies the perſon who pays the price; and therefore the philoſophical principles of the art, which require ſtudy, are not cultivated.

We ſhall now attend to the mechanical proceſs of this uſeful and beautiful kind of painting. Before painting, it is neceſſary to apply two layers. If the wall on which you are to paint is of brick, the layer is eaſily applied; but if it is of free ſtone cloſely united, it is neceſſary to make excavations in the ſtone, and to drive into them nails or pegs of wood in order to hold the firſt layer.

The firſt layer is made of good lime and a cement of pounded brick, or, which is ſtill better, river ſand: this latter forms a layer more uneven, and better fitted to retain the ſecond ſmooth and poliſhed layer applied to its ſurface.

There ſhould be experiments to diſcover a layer ſtill more compact, and more independent of the variations of the air; ſuch for example, as covers the aqueducts and ancient reſervoirs conſtructed by the Romans in the neighbourhood of Naples.

Before applying the ſecond layer, or what you are to paint, it is neceſſary that the firſt be perfectly dry; for there iſſues from the lime, when it is moiſt, a ſmell both diſagreeable and pernicious to the artiſt.

When the firſt layer is perfectly dry, it is wet with water in proportion to its dryneſs, that the ſecond layer may the more eaſily incorporate with it.

The ſecond layer is compoſed of lime, ſlaked in the air, and expoſed for a year, and of river ſand, of an equal grain, and moderately fine.

It requires an active and intelligent maſon to apply this layer, as the ſurface muſt be altogether equal. The operation is performed with a trowel; and the operator requires to have a ſmall piece of wood to take away the large grains of ſand, which, remaining, might render the ſurface uneven.

To

Fresco. To give a fine polish to this layer, one ought to take a sheet of paper, apply it to the wall, and pass and repass the trowel over the paper. By this means the little inequalities which hurt the exactness of the stroke, and which produce false appearances at a distance, are entirely smoothed.

The artist must not lay more than the painter can finish in a day, as this kind of painting must be executed on a fresh ground.

The layer being thus prepared, the painter begins his operation; but as painting in fresco must be executed rapidly, and as there is no time to retouch any of the strokes, the painter, as we have observed under the article FRESCO, takes care to provide himself with large cartoons, on which he has drawn, with exactness, and in their full size, the figures which he is to paint, which leaves him nothing to do but to copy them on the wall.

The cartoons are composed of several sheets of large paper pasted one on another, neither too thick nor too slender.

The painter traces the tracks of the figures on the plaster, by passing a steel point over the tracks in the cartoons, or in pricking them.

Having in this manner attained an exact and speedy drawing, it now remains to execute the painting.

But it is essential, when one wishes to finish any small work of this kind, in the first place to be informed of the proper colours, and of those which cannot be used.

In general, the colours which are extracted from earths, and those which have passed through the fire, are the only ones which can be employed in this kind of painting.

The colours are white, made of lime, the white of egg shells, ultramarine; the black of charcoal, yellow ochre, burnt vitriol, red earth, green of Verona, Venetian black, and burnt ochre.

There are others which require to be used with great precaution, such as enamel blue, cinnabar, and white marble dust.

When enamel blue is used, it requires to be applied instantaneously, and when the lime is very moist, otherwise it does not incorporate with the plaster; and if one retouch with this colour, it must be done an hour or more after the first application, to increase its lustre.

With regard to the white marble dust, it is subject to turn black if it be not mixed up with a convenient quantity of white lime.

Cinnabar which has a splendour almost superior to all other colours, loses it almost entirely when mixed with lime. At the same time, it may be employed in places not exposed to the air, with a little degree of care in the preparation. Reduce a quantity of the purest cinnabar to powder, put it into an earthen vessel, and pour lime water on it for two or three times. By this process the cinnabar receives some impression of lime water, which makes it capable of being employed in fresco painting.

One of the best colours, and the one most used in fresco for the gradation of tints, and for giving the requisite tone, is white of lime. This white is prepared by mixing lime slaked long before with good water. The lime deposits a sediment at the bottom of the vessel; when the water is poured off, this sediment is the white of lime. Fresco.

Another kind of white might be used, the effects of which would be known by experience, namely, the white of egg shells. To prepare this white, one must take a great quantity of shells of eggs, which must be pounded and boiled in water along with a quantity of quicklime; after this they are put into a strainer, and washed repeatedly with fountain water.

The shells are again pounded until the water employed for that purpose become pure and limpid; and when they are in this manner reduced to powder, this powder is grinded in water, and formed into small pieces, and dried in the sun.

All the different kinds of ochres make excellent colours for fresco, and take different shades, being previously burned in iron chests.

With regard to the Naples yellow, it is dangerous to use it where the painting is much exposed to the air. The blacks of charcoal, of peach stones, and of vine twigs, are good: but that extracted from bones is of no value.

Roman vitriol gathered at the furnaces, and which is called *burnt vitriol*, grinded afterwards in spirit of wine, resists the air extremely well when employed in lime. There is also a red extracted from this preparation somewhat like that produced from lac.

This colour is very proper for preparing the layers to be coloured with cinnabar; and the draperies painted with these two colours will vie in splendour with those painted with fine lac in oil.

The ultramarine is the most faithful colour; and it not only never changes, but it communicates this precious quality to those colours with which it is mixed.

The manner of employing those colours, is to grind them in water, and to begin by arranging them into the principal tints you are to employ: these are afterwards put into pots; and it is necessary to use a great many pallets raised at the edges, to form the intermediate shades, and to have under your eye all the shades you require.

As all the tints, except burnt ochre, violet, red, and blacks of all kinds, are apt to become clear, the painter must have beside him some pieces of brick or new tile very dry. A dash of the colours is applied to one of these with the pencil before using them; and as the tile instantaneously imbibes the water, one perceives what the shade will be after the fresco is dry.

§ 2. *Elydoric Painting, invented by M. Vincent of Montpetit.*

This new kind of painting is little known, and capable of great improvement.

Its principal advantages are, that the artist is able to give the greatest finishing possible to small figures in oil; to add to the mellowness of oil painting, the greatest beauty of water colours in miniature, and to do it in such a manner that it appears like a large picture seen through a glass which diminishes objects.

This kind of painting takes its name from two Greek words expressive of *oil* and *water*; because these two liquids are employed in the execution. The following is the manner of proceeding: A piece of very fine

Elydoric Painting.

linen, or of white taffety, is fized with ſtarch, in the moſt equal manner poſſible, on pieces of glaſs about two inches ſquare, the angles of which are blunted in order that the cloth may cover them neatly and without wrinkles.

When theſe pieces of cloth are ſufficiently dry, a layer compoſed of white lead finely grinded, and oil of pinks or of poppies, the whiteſt that can be found, is applied to them with a knife. When this layer is dry enough to admit of ſcraping, more may be applied if neceſſary.

As it is of the greateſt importance for the preſervation of this kind of painting, that the different layers be purged of oil, in order that they may imbibe the colours applied to them, it is neceſſary that their ſurface be very ſmooth, very dry, and very hard.

The artiſt is next provided with a circle of copper nearly two inches in diameter, one-fourth of an inch in height, extremely thin, and painted on the inſide with black. This circle is employed to contain the water on the ſurface of the picture.

The preference is given to water diſtilled from rain or ſnow; becauſe ordinary water, from the ſalts which it contains, is pernicious to this kind of painting.

It is neceſſary alſo to obſerve, that the colours muſt be grinded between two oriental agates, moſt carefully preſerved from duſt, and mixed with oil of poppies, or any other ſiccative oil which has been extracted without fire, and pure as water.

All the colours being grinded, they are placed in a ſmall heap on a piece of glaſs, which is covered with diſtilled water in a tin box.

When the materials are thus prepared, the ſubject is ſlightly traced on one of the pieces of cloth abovementioned with a lead pencil.

The tints are formed on the pallets from the heaps of colours under the water, and the pallet placed as uſual on the left arm with the thumb through the aperture. Elydoric Painting.

The picture is held between the thumb and fore finger, ſupported by the middle, and the neceſſary pencils between the third and little fingers. The hand is ſupported on the back of a chair, that there may be full liberty of bringing the work near, or keeping it at a diſtance from the eye.

The pencils are cleaned with the eſſence of rectified turpentine.

After having made the rough draught with the colours ſtill freſh, the circle of copper, which ought to ſurround the picture, is fitted exactly to the ſurface.

The diſtilled water is poured within this circle to the height of one-eighth part of an inch; and the body is leaned forward till the ſight fall perpendicularly on the object.

The third finger of the right hand muſt reſt on the internal right angle of the picture.

The artiſt, with a fine and firm pencil, runs over the firſt draught, to give colours to the weak places, and to ſoften thoſe which appear too ſtrong.

As ſoon as the oil ſwims on the top, the water is poured off, and the picture is carefully covered with a watch glaſs, and dried in a box with a gentle heat.

When it is ſufficiently dry, to be ſcraped almoſt to a level with the knife: the above operation is renewed till the artiſt is ſatisfied with his work.

It is in this laſt work that the artiſt feels all the advantage of this new method for finiſhing.

The water poured on the picture diſcovers all the faults of the pencil, gives facility in ſearching into the bottom of the ſhades, and the power of correcting the work and of rendering it perfect.

When the work is finiſhed, it is put under a cryſtal, where there is no admiſſion of external air, and dried with a gentle heat.

Part III. Of Economical Painting.

Sect. I.

THE object of this Part is to give an account of ſome mechanical proceedings in certain kinds of painting, calculated to preſerve and embelliſh the walls of houſes and furniture. This branch of the art extends to every part of architecture. The whole building becomes the workſhop of the artiſt; the ſtairs, the baluſtrades, the ſaſhes, the doors, and the railing of all kinds, occupying his firſt care, and then the ceiling and wainſcotting.

The artiſt gives to all his ſubjects a choſen and uniform tint; but he has it in his power to vary the colours on different parts of the building in ſuch a manner as to produce the moſt pleaſing objects.

22 Of the utenſils for this kind of painting.

Among the utenſils of the painter, it is needleſs, but for rendering the article complete, to mention bruſhes and pencils of all ſizes as abſolutely neceſſary.

The bruſhes are made of boars briſtles, or of hair with a mixture of briſtles; they ought to be ſtraight, very ſmooth, and of a round form. Half an hour before they are uſed, it is proper to ſoak them in water, in order to ſwell the wood of the handle, and prevent the hairs from falling off; after this they may be applied to all purpoſes, either in water colours or in oil; but it may be obſerved, that for the former they require leſs ſoftening.

The pencils are made of badgers hair, or any fine hairs enchaſed in the pipes of quills of all ſizes.

The veſſel wherein the pencils are cleaned is made of copper or of tin, ſmooth below, rounded at the ends, and divided into two parts by a thin plate in the middle. The oil, or the ſubſtance with which the pencil is cleaned, is contained in one of the diviſions.

The pallet is made of the wood of the pear or apple tree, of an oval or ſquare ſhape, very ſlender, but ſomewhat thicker at the centre than at the extremities. A hole is made in one of its ſides ſufficiently large to admit the thumb of the workman.

When the pallet is new, it is covered with oil of walnuts; and as often as it dries, the operation is repeated, till it be fully impregnated; it is afterwards poliſhed, and finally rubbed with a piece of linen dipped in oil of common nuts.

The painter's knife is a thin flexible plate, equally ſlender

Application of Colours.

ſlender on both ſides, rounded at one extremity, and the other fixed into a handle of wood.

All the veſſels employed to hold the colours ſhould be varniſhed; a precaution neceſſary to prevent their drying too quickly.

23 Of grinding and diluting the colours

To grind, is to reduce to powder the ſubſtances which give colours on a piece of marble or any hard ſtone by means of water, oil, or eſſence.

To dilute, is to impregnate a liquid with a tint in ſuch a manner as to make it capable of being applied by a bruſh.

When the materials are grinded in water, it is proper to dilute them in ſize made from parchment. If they are diluted in ſpirit of wine, there muſt be no more diluted than what ſerves the immediate occaſion, as colours prepared in this manner dry very rapidly.

Colours grinded in oil are ſometimes diluted with pure oil, more frequently with oil mixed with eſſence, and commonly with the pure eſſence of turpentine; the eſſence makes the colours eaſy to work. Thoſe prepared in this manner are more ſolid, but they require more time to dry.

When colours are grinded with the eſſence of turpentine, and dilated in varniſh, as they require to be immediately applied, it is neceſſary to prepare a ſmall quantity at a time. This preparation of colours gives greater brilliancy, and dries more ſpeedily, than thoſe prepared in oil; but they require more art to manage them.

They grind colours or coloured ſubſtances with a mullet, which is employed on the ſtone till they become a very fine powder. The operation is facilitated by moiſtening them from time to time with a little water, and by collecting them under the mullet with the knife. They are afterwards laid in ſmall heaps on a ſheet of white paper, and allowed to dry in a ſituation not expoſed to duſt. Thoſe who grind white lead have a ſtone for the purpoſe, as this colour is very eaſily tarniſhed. In executing this part well, it is neceſſary to grind the colours equally and moderately; to grind them ſeparately, and not to produce a tint by mixture till the colours are well prepared.

Dilute no more at a time than what you have occaſion to employ, to prevent them from growing thick.

In grinding the colours, put in no more liquid than what is neceſſary to make the ſolid ſubſtances yield eaſily to the muller; the more the colours are grinded, they mix better, and give a ſmoother and more agreeable painting.

It is alſo neceſſary to give all attention to the grinding and diluting of colours, that they may be neither too thick nor too thin.

Sect. II. *Application of Colours.*

1. Prepare only the quantity neceſſary for the work you undertake, becauſe they do not keep long; and thoſe which are newly mixed are more vivid and beautiful.

2. Hold the bruſh ſtraight before you, and allow only the ſurface to be applied to the ſubject: if you hold it inclined in any other direction, you will run the hazard of painting unequally.

3. It is neceſſary to lay on the colours boldly, and with great ſtrokes; taking care at the ſame time to ſpread them equally over the ſurface, and not filling up the moulding and carved work. If this accident ſhould happen, you muſt have a little bruſh to clean out the colours. Application of Colours.

4. Stir them frequently in the veſſel, that they may preſerve always the ſame tint, and that no ſediment may remain at the bottom.

5. Take care not to overcharge the bruſh with the colour.

6. Never apply a ſecond layer till the firſt or preceding one be perfectly dry; which it is eaſily known to be when, in bearing the hand gently over it, it does not adhere.

7. In order to render this drying more ſpeedy and uniform, make always the layers as thin as poſſible.

8. Before painting, it is neceſſary to prime the ſubject; that is, to give it a layer of ſize, or of white colouring oil, to fill up the pores, and render the ſurface ſmooth: by this means fewer layers of colour or of varniſh are afterwards neceſſary.

9. Every ſubject to be painted or gilded ought to have firſt a white ground; this preſerves the colours freſh and vivid, and repairs the damage which they occaſionally receive from the air.

§ 1. *Of Painting in Water Colours.*

To paint in water colours, is to do it in thoſe which are grinded in water and diluted in ſize. There are three kinds of this painting; namely *common*, the *varniſhed*, and that which is called *king's white*; but before entering on theſe, it is neceſſary to make ſome preliminary obſervations.

1. Take care that there be no greaſe on the ſubject; and if there be, ſcrape it off, or clean it with a lye, or rub the greaſy part with garlic and wormwood.

2. Let the diluted colour fall in threads from the end of the bruſh when you take it out of the veſſel; if it adheres to it, it is a proof that it wants ſize.

3. Let all the layers, eſpecially at the beginning, be laid on very warm, provided that the liquid be not boiling, which would effectually ſpoil the ſubject; and if on wood, expoſe it to crack. The laſt layer, given immediately before the varniſh, is the only one which ought to be applied cold.

4. In very fine work, where it is neceſſary to have beautiful and ſolid colours, the ſubjects are prepared by ſize and proper whites, which ſerve as a ground to receive the colour, and render the ſurface very equal and ſmooth.

5. Whatever colour is to be laid on, the white ground is the beſt, as it aſſimilates moſt eaſily with the painting, which borrows always ſomething of the ground.

6. If knots of wood are found in the ſubject, it is neceſſary to rub them with garlic, to make the ſize adhere.

To make the following details ſufficiently plain, we ſhall take the meaſures to which the quantity of colours are applied at fathoms; that is to ſay, ſix feet in height by ſix feet in breadth. We ſhall afterwards fix the quantity of materials, and of liquids, neceſſary to cover this ſurface. This, however, cannot be exactly defined; as ſome ſubjects imbibe the colours much more than others. The manner of employing them alſo makes a difference; as habit enables one to manage them to

greater

Application of Colours.

greater advantage than another. And it is alſo to be obſerved, that the firſt layer will conſume more than the ſecond; and that a prepared ſubject requires leſs than one which has not been ſo.

When we ſpeak of a fathom, it muſt be underſtood of a ſmooth and equal ſurface; for if the wood is varied with mouldings and carving, there muſt be a difference in the quantity of colours. In general, it requires about a pound of colours to paint a ſquare fathom in water colours. In making up this quantity, take three-fourths of colours grinded in water, and one-fourth pound, or ſix ounces, of ſize to dilute it.

§ 2. *Of Painting in Common Water Colours.*

Works which require no great care or preparation, as cielings and ſtaircaſes, are generally painted in common water colours, i. e. with earths infuſed in water and diluted in ſize.

For a common white kind of this painting, ſteep Spaniſh white moderately pounded in water for two hours. Infuſe a proper quantity of the black of charcoal in water for the ſame ſpace of time; mix the black and white in the proportion that the tint requires; afterwards mix them up with a pretty ſtrong ſize ſufficiently thick and warm, and apply them to the ſubject in as many layers as may be thought neceſſary. It requires about two pounds of white in a pint of water, and a quantity of black in proportion to the tint, together with a part of ſize, to cover a ſquare fathom. If this be employed on old walls, they muſt be well ſcraped, the duſt bruſhed off with a hair beſom, and waſhed carefully with lime water. If on new plaſter, the colours require more ſize.

All kinds of colours may be grinded in water only when the tint is made; and when they have been infuſed in water, they muſt be mixed up with ſize.

§ 3. *Walls done with the White* Des Carmes.

The white *des carmes* is a manner of whitening interior walls, whereby they are rendered extremely beautiful.

1. Procure a quantity of the very beſt lime, and paſs it through fine linen; pour it into a large tub, furniſhed with a ſpigot at the height equal to that which the lime occupies: fill the tub with clear fountain water; beat the mixture with great pieces of wood, and then allow it to ſettle for 24 hours.

2. Open the ſpigot, allow the water to run off, ſupply the tub with freſh water, and continue this operation for ſeveral days until the lime receives the greateſt degree of whiteneſs.

3. When you allow the water finally to run off, the lime will be found in the conſiſtency of paſte; but with the quantity you uſe it is neceſſary to mix a little Pruſſian blue or indigo to relieve the brightneſs of the white, and a ſmall quantity of turpentine to give it brilliancy. The ſize proper for it is made of glove leather, with the addition of ſome alum; and the whole is applied with a ſtrong bruſh in five or ſix layers to new plaſter.

4. The wall is ſtrongly rubbed over with a bruſh of hogs briſtles after the painting is dry; which gives it its luſtre and value, and which makes it appear like marble or ſtucco.

§ 4. *Of Badegeon.*

Application of Colours.

Badegeon is a pale yellow colour applied to plaſter to make it appear like free ſtones. It gives to old houſes and churches the exterior of a new building, by aſſuming the colour of ſtones newly cut.

1. Take a quantity of lime newly killed.

2. Add to it half the quantity of what the French call *ſciure de pierre* in which you have mixed of the ochre of *rue*, according to the colour of the ſtone you intend to imitate.

3. Steep the whole in a pail of water, in which is melted a pound of rock alum. When the *ſciure de pierre* cannot be obtained, it is neceſſary to uſe a greater quantity of ochre *de rue*, or of yellow ochre, or grind the ſcales of the ſtone de St Leu; paſs it through a ſieve: and along with the lime it will form a cement, on which the weather will ſcarcely make any impreſſion.

§ 5. *Of Cielings and the Roofs of Rooms.*

When the cielings or roofs are new, and you wiſh to whiten them, take white of Bougival, to which add a little of the black of charcoal to prevent the white from growing reddiſh: infuſe them ſeparately in water; mix the whole with half water and half ſize of glove leather, which being ſtrong would make the layer come off in rolls if it were not reduced with water. Give two layers of this tint while it is lukewarm.

If the roof has been formerly whitened, it is neceſſary to ſcrape to the quick all the remaining white; then give it two or three layers of lime to ground and whiten it: Bruſh it carefully over; and give it two or three layers of the white of Bougival prepared as before.

§ 6. *Of Colouring the backs of Chimneys with Lead Ore.*

Clean them with a very ſtrong bruſh, and carefully rub off the duſt and ruſt; pound about a quarter of a pound of lead ore into a fine powder, and put it into a veſſel with half a pint of vinegar; then apply it to the back of the chimney with a bruſh: When it is made black with this liquid, take a dry bruſh, dip it in the ſame powder without vinegar, and dry and rub it with this bruſh till it become ſhining as glaſs.

§ 7. *Of Varniſhed Water Colours.*

The advantages of this kind of painting are, that the colours do not fade; that they reflect the light; that they give no offenſive ſmell, but permit the places to be inhabited as ſoon as finiſhed; and that the varniſh preſerves the wood from inſects and moiſture.

To make a fine varniſh on water colours, ſeven principal operations are neceſſary; namely, to ſize the wood, to prepare the white, to ſoften and rub the ſubject, to clean the moulding, to paint, to ſize, and to varniſh.

To ſize the wood is to give one or two layers of ſize to the ſubject which you intend to paint.

Take three heads of garlic and a handful of worm-wood leaves; boil them in three pints of water till they are reduced to one; paſs the juice through a linen cloth, and mix it with a pint of parchment ſize; add half a handful of ſalt and half a pint of vinegar; and boil the whole on the fire. 24 Firſt operation.

Size

Application of Colours.

Size the wood with this boiling liquor; allow it to penetrate into the carved and ſmooth places of the wood, but take care at the ſame time to take it as clean off the work as poſſible, or at leaſt to leave it at no place thicker than another. This firſt ſizing ſerves to fill up the pores of the wood, and to prevent the materials afterwards from collecting in a body, which would cauſe the work to fall off in ſcales.

In a pint of ſtrong parchment ſize, to which you have added four pints of warm water, put two handfuls of white Bougival, and allow it to infuſe for the ſpace of half an hour.

Stir it well, and give a ſingle layer of it to the ſubject very warm but not boiling, equally and regularly laid on, and daſhed with repeated ſtrokes of the bruſh into the mouldings and carved work.

25 Second operation.

To prepare the white, take a quantity of ſtrong parchment ſize, and ſprinkle lightly over it with the hand, Bougival white, till the ſize be covered with it about half an inch in thickneſs; allow it to ſoak for half an hour as near the fire as to keep it milk warm: and then ſtir it with the bruſh till the lumps are broken and it be ſufficiently mixed.

Give ſeven, eight, or ten layers of this white, or as many as the nature of the work or the defects in the wood ſhall render neceſſary, giving more white to the parts which require to be ſoftened; but in general, the layers muſt be equal both with regard to the quantity of the white and the ſtrength of the ſize.

The laſt layer of the white ought to be clearer than the reſt, which is made by adding water. It muſt be applied more ſlightly, taking care with ſmall bruſhes to cover all the difficult places in the mouldings and carved work. It is neceſſary alſo, between the drying of the different layers, to fill up all the defects with white maſtich and ſize.

26 Third operation.

To ſoften, is to give to the ſubject after the whitening a ſmooth and equal ſurface, and to rub it over with a pumice ſtone.

The wood being dry, take little pieces of white wood and of pumice ſtone, grinded for the purpoſe into all neceſſary forms, either for the pannels or the moulding.

Take cold water, heat being deſtructive of this kind of work; in ſummer it is common to add a little ice. Soften the wall with a bruſh, but only as much at a time as you can eaſily work, as the water might dilute the white and ſpoil the whole: Then ſmooth and rub it with the pumice ſtones and with the ſmall pieces of wood. Waſh it with a bruſh as you ſmooth it, and rub it over with a piece of new linen, which gives a fine luſtre to the work.

27 Fourth operation.

The mouldings and carved work are cleaned with an iron; and the only thing to be attended to in the operation is not to raiſe the grain of the wood.

The ſubject thus prepared is ready to receive the colour you intend to give it. Chooſe your tint; ſuppoſe a ſilver colour.

28 Fifth operation.

Grind white ceruſe and Bougival white ſeparately in water, of each an equal quantity, and mix them together.—Add a little blue of indigo and a very ſmall quantity of black of charcoal from the vine tree very fine, grinded alſo ſeparately, and in water; more or leſs of the one or other gives the tint you require.—Dilute this tint in ſtrong parchment ſize; paſs it through a bolting cloth of ſilk very fine, and lay the tint on your work, taking care to ſpread it very equally; and then give it two layers, and the colour is applied.

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29 Sixth operation.

Make a weak, beautiful, and clean ſize; ſtir it till it cools; ſtrain it through a fine cloth, and give two layers to the work with a ſoft painting bruſh, which has been uſed, but which you have been careful to clean. Take care not to choke up the mouldings nor to lay on the ſize thicker on one place than another, and ſpread it over the work very ſlightly, otherwiſe you will dilute the colours, and occaſion undulations in the painting.

The beauty of the work depends on this laſt ſizing; for if any part is omitted, the varniſh will penetrate into the colours and give it a darker ſhade.

30 Seventh operation.

When the ſizing is dry, lay on two or three layers of ſpirit of wine varniſh, taking care that the place on which you lay it be warm, and the work is finiſhed.

§ 8. *Of the King's White.*

This derives its name from the uſe of it in the apartments of the French king. It is in all reſpects conducted like the former, except that there is only a ſmall quantity of indigo, to take the yellow from the white, without any black of charcoal, and without varniſh.

This white anſwers extremely well for apartments which are ſeldom uſed; but otherwiſe it ſpoils eaſily, eſpecially in bedchambers. It is the beſt white where there is any kind of gilding; and in this caſe it receives a little varniſh.

Sect. III. *Of Painting in Oil Colours.*

To paint in oil is to apply to all ſorts of ſubjects, as walls, wood, cloths, and metals, coloured earths grinded and diluted in oil. The ancients are thought to have been ignorant of this art, and the honour of the diſcovery is generally aſcribed to John Van Eyck a Flemiſh painter. The ſecret is nothing more than ſubſtituting oil in place of water in grinding and diluting colours.

By means of oil the colours are longer preſerved; and not drying ſo ſpeedily, they give painters longer time to ſmooth, finiſh, and retouch, their works; the colours being more marked, and mixing better together, give more diſtinguiſhable tints, and more vivid and agreeable gradations, and the colouring is more ſweet and delicate.

The painting in oil conſiſts of two kinds, namely, of that in ſimple oil and of that in poliſhed oil varniſh.

§ 1. *Obſervations on Painting in Oil.*

1. When bright colours, as white or gray, are grinded and diluted in oil, it is neceſſary to make uſe of the oil of walnuts; but if the colours be dark, ſuch as cheſnut, or olive, or brown, you muſt make uſe of pure linſeed oil.

2. When the colours are grinded and diluted in oil, they muſt be laid on cold except on a new or moiſt plaſter, which requires them to be boiling.

3. Every colour diluted in pure oil, or in oil mixed with eſſence, ought to fall in threads from the end of the bruſh.

4. Take care to ſtir from time to time your colour before

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before taking it up on the brush, that it may preserve an equal thickness, and consequently the same tone. Notwithstanding the precaution of stirring, if it is found to be thicker towards the bottom, it will be necessary to pour in from time to time a little oil.

5. In general, every subject which is painted in oil ought first to receive one or two layers of white ceruse, grinded and diluted in oil.

6. When the painting is exposed to the air, as in doors, windows, and other works, which cannot be varnished, it is necessary to make these layers with pure oil of walnuts, mixed up with about one ounce of essence to a pound of colours; more would make the colours brown, and occasion them to fall off in dust; but this quantity prevents the sun from blistering the work.

7. In subjects on the inside of the house, or when the painting is varnished, the first layer ought to be grinded and diluted in oil, and the last diluted with pure essence.

8. If copper or iron, or other hard substances, are to be painted, it is necessary to mix a little essence with the first layers, to make the oil penetrate into them.

9. When there are many knots in the subject, as is particularly the case with fir wood, and when the colour does not easily take impression on these parts, it is necessary, when you paint with simple oil, to lay on a little oil mixed with litharge on the knots. If you paint with polished oil varnish, it is necessary to apply a hard tint, which we shall have occasion to speak of afterwards. A single layer well applied is generally sufficient to give a body to the wood, and make the other layers apply easily.

10. There are colours, such as what the French call *stils-de-grain*, black of charcoal, and especially bone and ivory blacks, which are difficult to dry when grinded in oil. To remedy this inconveniency, the following siccatives are mixed with the colours, to make them dry, viz. litharge both of the silver and gold colour, vitriol or copperas, and what is called *siccative oil*.

§ 2. *Observations on the Siccatives.*

1. Do not mix the siccatives with the colours till they are to be employed, otherwise it will thicken them.

2. Mix it only in very small quantities in tin, wherein there is white lead or ceruse, because those colours are siccative of themselves, especially when they are diluted in essence.

3. In painting which is to be varnished, give the siccative only to the first layer, and allow the other layers, in which there is essence, to dry of themselves.

4. In dark colours in oil, give to every pound of colours in diluting them half an ounce of litharge; to bright colours, a drachm of white copperas grinded in walnut oil.

5. When in place of litharge or copperas the siccative oil is employed, it requires a quartern of this oil to every pound of colour.

The siccative oil is prepared of one half ounce of litharge, as much of calcined ceruse, as much of *terre d'ombre*, a colour with which the French paint shadows, and as much of talc boiled for two hours on a slow and equal fire, with one pound of linseed oil, and stirred the whole time. It must be carefully skimmed and clarified, and the older it grows it is better.

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§ 3. *Observations on the Quantities of Substances and Liquids.*

1. Ochres and earths require more liquids both in grinding and diluting than ceruse.

2. Different quantities of liquids are required in the grinding only on account of greater or less dryness; but in diluting, the quantity is always the same.

3. For the first layer after the priming, which has no relation to the colours laid on afterwards, to a square fathom give fourteen ounces of ceruse, about two ounces of liquid to grind, and four ounces to dilute it. If there is a second layer of the same materials, the quantities will require to be less.

4. It will require three pounds of colour for three layers of a square fathom. The first may consume eighteen ounces, the second sixteen, and the third fourteen.

5. To compose these three pounds of colour, take two or two and a half pounds of grinded colours, and dilute them in a pint or three half pints of oil, mixed with essence or pure oil. But if the first layer of ceruse is not used, there will be a necessity for a greater quantity of colours.

N. B. In the following kinds and applications of oil painting, we are to hold those proportions in our eye.

§ 4. *Painting in simple Oil.*

31 Of doors, windows, and window-shutters.

On doors and windows give a layer of ceruse grinded in oil of walnuts diluted in the same oil, together with a little siccative; then give another layer of the same preparation; to which, if you want a grayish colour, add a little black of charcoal and Prussian blue, grinded also in oil of walnuts. If to these you incline to add a third layer, grind and dilute it in pure walnut oil; observing that the two last layers be less clear, or have less oil in them, than the first; the colour in this case is more beautiful and less apt to blister with the sun.

32 Of walls.

Walls that are to be painted must be very dry; and this being supposed, give two or three layers of boiling linseed oil to harden the plaster; then lay on two layers of ceruse or ochre, grinded and diluted in linseed oil; and when these are dry, paint the wall.

33 Of tiles.

To paint tiles of a slate colour, grind separately ceruse and German black in linseed oil; mix them together in the proportion which the colour requires, and dilute them in linseed oil: then give the first layer very clean to prime the tiles; and make the three next layers thicker, to give solidity to the work.

34 Of arbours, &c.

To paint arbours and all kinds of garden work, give a layer of white ceruse grinded in oil of walnuts, and diluted in the same oil, with the addition of a little litharge, then give two layers of green, composed of one pound of verdigris and two pounds of white lead, grinded and diluted in oil of walnuts. *N. B.* This green is of great service in the country for doors, window shutters, arbours, garden seats, rails, either of wood or iron; and in short for all works exposed to the injuries of the weather.

35 Of statues and vases.

To whiten statues, vases, and all ornaments of stone, either within or without doors; first clean the subject well,

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well, then give one or two layers of white ceruſe, grinded and diluted in pure oil of pinks, and finiſh with giving one or many layers of white lead prepared in the ſame manner.

36 Painting on the inſide of the houſe.

If you wiſh to paint on walls not expoſed to the air, or on new plaſter, give one or two layers of boiling linſeed oil, and continue the bruſh till the walls are fully ſoaked; then give a layer of white ceruſe, grinded in oil of walnuts, and diluted with three-fourths of the ſame oil and one-fourth eſſence; and laſtly, give two layers more of white ceruſe, grinded in oil of walnuts and diluted in oil mixed with eſſence, if it is not to be varniſhed; but in pure eſſence if it is. It is in this manner that walls are painted white. If you adopt another colour, it is neceſſary to grind and dilute it in the ſame quantities of oil and eſſence.

37 Chairs, benches, ſtone, and plaſter.

To paint chairs, benches, ſtone, or plaſter, give a layer of white ceruſe grinded in oil of walnuts and diluted in the ſame oil, into which you have caſt a little litharge to make it dry; then apply a layer of the tint you fix on, grinded in oil and diluted in one part oil and three parts eſſence; and afterwards give two more layers of the ſame tint grinded in oil and diluted in pure eſſence: This may be varniſhed with two layers of ſpirit of wine.

38 Steel colour for locks.

To make a ſteel colour, grind ſeparately in eſſence, white ceruſe, Pruſſian blue, fine lac, and verdigris. The tone which you require is procured by the proper mixture of thoſe ingredients. When you have fixed on the tone of colour, take about the ſize of a walnut of the ingredients, and dilute them in a ſmall veſſel in one part of eſſence and three parts of white oily varniſh. *N. B.* This colour is generally made of white ceruſe, of black charcoal, and Pruſſian blue, grinded in thick oil, and diluted in eſſence, which is the cheapeſt method of procuring it; but the former is the moſt beautiful.

39 Balluſtrades and railings.

For painting balluſtrades and railings, dilute lamp black with varniſh of vermilion; giving two layers of it, and afterwards two layers of ſpirit of wine varniſh.

40 Wainſcotting of apartments.

Since the diſcovery of oil painting, and the knowledge that wood is preſerved by it, and eſpecially ſince the diſcovery of a varniſh without ſmell, and which even takes away that of oil, the painting of apartments in oil has been with juſtice preferred.

In fact the oil ſtops up the pores of the wood; and although it does not altogether reſiſt the impreſſion of moiſture, yet the effect is ſo little perceptible, that it is to be recommended as the beſt method of preſerving wood.

To preſerve wainſcotting in the moſt effectual manner from moiſture, it is neceſſary to paint the wall behind it with two or three layers of common red, grinded and diluted in linſeed oil.

To paint the wainſcotting itſelf, give a layer of white ceruſe grinded in oil of walnuts, and diluted in the ſame oil mixed with eſſence. This layer being dry, give two more of the colour you have adopted, grinded in oil and diluted in pure eſſence. If you wiſh the mouldings and ſculpture to be painted in a different colour, grind and dilute it in the ſame manner.

Two or three days after, when the colours are fully dry, give two or three layers of your white varniſh without ſmell, and which alſo prevents the offenſive ſmell of the oil colours. *N. B.* Thoſe who begin their operations in water colours, if they find it more agreeable, may finiſh it in oil colours as above. Painting in Oil Colours.

When the pores of the wood are well ſtopped by the prepared white, a layer of white ceruſe grinded in oil of walnuts, and diluted in the ſame oil, mixed with eſſence, may be applied. This will be ſufficient, the wood being previouſly primed; and afterwards lay on your intended colour and varniſh.

§ 5. *Painting in Oil with the poliſhed Varniſh.*

This is the beſt kind of oil painting, owing more to the care it requires than to the proceedings, for they are nearly the ſame with thoſe of ſimple oil painting; the difference conſiſting only in the preparation and manner of finiſhing.

41 Wainſcottings.

To paint wainſcottings of apartments with the poliſhed varniſh, it is neceſſary, in the firſt place, that the pannels be new. Then,

1. Make the ſurface of the ſubject which you mean to paint very ſmooth and level, which is done by a layer, which ſerves to receive the hard tint or poliſhed ground and the colours.

This layer ought to be of white, whatever colour you are afterwards to apply. It conſiſts of white ceruſe, grinded very fine in linſeed oil, with a little litharge, and diluted in the ſame oil mixed with eſſence.

2. Make the poliſhed ground by ſeven or eight layers of the hard tint. In painting equipages, a dozen is neceſſary.

The hard tint is made, by grinding pure white ceruſe, which has not been much calcined, very finely in thick oil, and diluting it with eſſence. You muſt take care that the layers of the hard tint be not only equal as to the application, but to the quantity of the white ceruſe and the oil, and to the degree of calcination. Then,

3. Soften this ground with pumice ſtone.

4. Poliſh it moderately with a piece of ſerge ſoaked in a pail of water, in which you have put ſome powder of pumice ſtone finely grinded and paſſed through a fine ſieve. There is no occaſion to ſpare waſhing, as this part of the operation will not ſpoil with water.

5. Chooſe the tint with which you intend to decorate your apartment; grind it in oil, and dilute it in eſſence; paſs it through a piece of very fine ſilk, give two or three layers carefully and thinly ſpread over the ſurface, as on this part of the operation depends in a great meaſure the beauty of the colour. All ſorts of colours may be employed in this manner in oil of eſſence.

6. Give two or three layers of a ſpirit of wine varniſh, if it is to wainſcotting; if to the body of a coach, a varniſh of oil is employed. If the varniſh is to be poliſhed, it is neceſſary to give ſeven or eight layers at leaſt, laid on equally and with great precaution, not to be thicker in one place than another, which occaſions ſpots.

7. It is again poliſhed with pumice ſtone reduced to powder, and water and a piece of ſerge. If the wainſcotting has been painted before, it is neceſſary to rub off the colour till you come to the hard tint, which is done with pumice ſtone and water, or with a piece of linen dipped in eſſence.

42 White varniſh poliſh in oil.

There is a white painting in oil, called *white varniſh poliſh*, which correſponds to the king's white in water colours,

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colours, and is equal to the freſhneſs and gloſs of marble if it is applied to wood. To paint in this manner,

1. Give a layer of white ceruſe grinded in oil of walnuts, with a little calcined copperas, and diluted in eſſence. But if it is applied to ſtone, it is neceſſary to employ oil of walnuts and calcined copperas alone.

2. Grind white ceruſe very fine in eſſence, and dilute it in fine white oil varniſh with copal.

3. Give ſeven or eight layers of it to the ſubject.—The varnith mixed with the white ceruſe dries ſo promptly, that three layers of it may be given in a day.

4. Soften and poliſh all the layers as above.

5. Give two or three layers of white lead grinded in oil of walnuts, and diluted in pure eſſence.

6. Give ſeven or eight layers of white ſpirit of wine varniſh, and then poliſh them.

§ 6. *Of Painting in Varniſh.*

To paint in varnith, is to employ colours grinded and diluted in varniſh, either in ſpirits of wine or oil, on all ſorts of ſubjects. Wainſcotting, furniture, and equipages, are painted in this manner, though we ſhall confine ourſelves to the firſt.

1. Give two layers of white of Bougival, diluted in a ſtrong ſize boiling hot.

2. Give a layer of what the French call *de blanc apprit*.

3. Fill up the defects of the wood with maſtich in water; and when the layers are dry, ſmooth them with the pumice ſtone.

4. When the wood is ſmooth, ſuppoſe the paint a gray colour, take one pound of white ceruſe, one dram of Pruſſian blue, or of black of charcoal or ivory black; put the white into a piece of leather, ſo tied that the colours cannot eſcape; ſhake them till they are ſufficiently mixed.

5. Put two ounces of colours into a quartern of varniſh; mix them carefully; give one layer above the white.

6. This layer being dry, put one ounce of colours into the ſame quantity of varniſh as above, and give a ſecond layer.

7. To the third layer give half an ounce of colour to the ſame quantity of varniſh.

8. As each of theſe layers dry, be careful to rub them with a piece of new coarſe cloth, in ſuch a manner, however, as not to injure the colour. *N. B.* The three layers may be given in one day.

9. If you want to give a perfect luſtre, add a fourth layer prepared as the third.

All other colours, as blue, &c. may be applied in the ſame manner. This method is the only one by which orpiment can be employed in all its beauty, but not without ſome of its inconveniences.

Another manner of performing this kind of work, is to apply the colours and the varniſh without previouſly uſing the ſize and the white ground. This is extremely expeditious, but it is eaſy to perceive it will want the poliſh and brilliancy of the other.

Sect. IV.

We cannot perhaps more properly conclude this article, than with an account of M. de Morveau's attempts to render more perfect the proportion of colours, and eſpecially of *white*, employed in painting. Theſe we ſhall extract from a memoir of his read in the academy of Dijon. Painting in Oil Colours.

"White (ſays the ingenious academician) is the moſt important of all colours in painting. It affords to the painter the materials of light, which he diſtributes in ſuch a manner as to bring his objects together, to give them relief, and that magic which is the glory of his art. For theſe reaſons I ſhall confine my attention at preſent to this colour.

43 Examination of known whites.

"The firſt white which was diſcovered, and indeed the only one yet known, is extracted from the calx of lead. The danger of the proceſs, and the dreadful diſtemper with which thoſe employed in it are often ſeized, have not yet led to the diſcovery of any other white. Leſs anxious, indeed, about the danger of the artiſt than the perfection of the art, they have varied the preparation, to render the colour leſs liable to change. Hence the different kinds of white, viz. white of Crems in Auſtria, white lead in ſhells, and white ceruſe. But every perſon converſant in colours, knows that the foundation of all theſe is the calx of lead, more or leſs pure, or more or leſs loaded with gas. That they all participate of this metallic ſubſtance, will indeed appear evident from the following experiment, which determines and demonſtrates the alterability of colours by the phlogiſtic vapour.

"I poured into a large glaſs bottle a quantity of liver of ſulphur, on a baſis of alkali, fixed or volatile, it makes no difference; I added ſome drops of diſtilled vinegar, and I covered the mouth of the bottle with a piece of paſteboard cut to its ſize, on which I diſpoſed different ſamples of crems, of white lead, and of ceruſe, either in oil or in water; I placed another ring of paſteboard over the firſt, and tied above all a piece of bladder round the neck of the bottle with a ſtrong pack-thread. It is evident, that in this operation I took advantage of the means which chemiſtry offers to produce a great quantity of phlogiſtic vapour, to accompliſh inſtantaneouſly the effect of many years; and, in a word, to apply to the colours the very ſame vapours to which the picture is neceſſarily expoſed, only more accumulated and more concentrated. I ſay the ſame vapour, for it is now fully eſtabliſhed, that the ſmoke of candles, animal exhalations of all kinds, alkaleſcent odours, the electric effluvia, and even light, furniſh continually a quantity more or leſs of matter, not only analogous, but identically the ſame with the vapour of vitriolic acid mixed with ſulphur.

"If it happens that the ſamples of colours are ſenſibly altered by the phlogiſtic vapour, then we may conclude with certainty, that the materials of which the colours are compoſed, bear a great affinity to that vapour; and ſince it is not poſſible to preſerve them entirely from it in any ſituation, that they will be more or leſs affected with it, according to the time and a variety of circumſtances.

"After ſome minutes continuance in this vapour, I examined the ſamples of colours ſubmitted to its influence, and found them wholly altered. The ceruſe and the white lead both in water and oil were changed into black; and the white of crems into a browniſh black; and hence thoſe colours are bad, and ought to be abandoned. They may indeed be defended in ſome meaſure by varniſh: but this only retards for a time the contact

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of the phlogiſtic vapour; for as the varniſh loſes its humidity, it opens an infinite number of paſſages to this ſubtile fluid.

"After having aſcertained the inſtability of the whites in common uſe, I made ſeveral attempts to diſcover ſuch as would prove more laſting; and though many of theſe attempts were without effect, I ſhall give a ſuccinct account of the whole, which may ſave a great deal of trouble to thoſe who wiſh to travel over the ſame field.

"There are three conditions eſſential to a good colour in painting.

"*Firſt*, That it dilute eaſily, and take a body both with oils and with mucilages, or at leaſt with the one or other of theſe ſubſtances, a circumſtance which depends on a certain degree of affinity. Where this affinity is too ſtrong, a diſſolution enſues; the colour is extinguiſhed in the new compoſition, and the maſs becomes more or leſs tranſparent; or elſe the ſudden re-action abſorbs the fluid, and leaves only a dry ſubſtance, which can never again be ſoftened. But if the affinity is too weak, the particles of colour are ſcarcely ſuſpended in the fluid, and they appear on the canvas like ſand, which nothing can fix or unite.

"The *ſecond* condition is, That the materials of which colours are compoſed do not bear too near an affinity with the phlogiſtic vapour. The experiments to which I ſubmitted whites from lead, is an infallible means of aſcertaining the quality of colours in this reſpect, without waiting for the ſlow impreſſion of time.

"A *third* condition equally eſſential is, That the colouring body be not volatile, that it be not connected with a ſubſtance of a weak texture, ſuſceptible of a ſpontaneous degeneracy. This conſideration excludes the greater part of ſubſtances which have received their tint from vegetable organization; at leaſt it makes it impoſſible to incorporate their finer parts with a combination more ſolid.

"After theſe reflections, my reſearches were directed, firſt, to the five pure earths; next, to the earthy compounds; in the third place, to the earthy ſalts, which can ſcarcely be diſſolved; laſtly, to the metallic earths, either pure or precipitated by Pruſſian alkali. M. Wenzel has diſcovered a ſixth earth, which I call *eburne*, and which, after other experiments, I thought of applying to the purpoſes of painting; but I ſoon perceived that it would have the ſame fault with other kinds of earth, and, beſides, that it could not be obtained but at a very conſiderable expence.

"The five pure earths poſſeſs fixity in a very great degree, and at the ſame time are little affected by the phlogiſtic vapour; but they refuſe to unite with oil or mucilages, and the white is totally extinguiſhed when they are grinded with theſe liquids. I made ſeveral attempts on earth from alum, not only becauſe M. Beaumé recommended the uſe of it in painting, and becauſe it enters into the compoſition of Pruſſian blue, but alſo becauſe it is a chief ingredient in ochres, and other earths of that nature, which ſuppoſes that it ſhould unite in a certain degree with diluting liquors; notwithſtanding, in whatever manner I treated it, it would not yield a white; but one will be leſs ſurpriſed at this want of ſucceſs, when he conſiders, that in the ochres and Pruſſian blue, the earth from alum is only the vehicle of the colouring body, whereas here it is the colour itſelf.

"To be convinced of the truth of this obſervation, it is only neceſſary to mix equal parts of this earth, or even of clay not coloured, with ceruſe or any other white: the mixture will be ſuſceptible of being grinded in oil or in gum without being extinguiſhed; it will eaſily unite with any coloured ſubſtance, and be productive of no bad conſequences to the pure earths.

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"Nature and art preſent to us a conſiderable number of earthy compoſitions ſufficiently white for the purpoſes of painting; ſuch as the jaſper white, the feldſpat white, the ſchirl white, &c. But all theſe ſubſtances, in all the trials which I made, had the fault which I have already mentioned; and originating from the ſame cauſe, they wanted a fixed colouring body, which would not change when it is pulverized, nor be extinguiſhed when t is diluted.

"The ultramarine blue, which is extracted from the blue jaſper, and known by the name of lapis lazuli, ſeems at firſt view to warrant the poſſibility of appropriating to painting all the opaque half vitrified compoſitions of the nature of jaſper.

"Prepoſſeſſed with this idea, I conceived the hope of producing a true white lapis; but I ſoon perceived that the experiment confirmed the principle which I had laid down from my obſervations on pure earths; ſince it is not the ſubſtance peculiar to the jaſper which conſtitutes the ultramarine blue, but the metallic ſubſtance which accidentally colours this particular kind of jaſper.

"In the ſame manner, art in this imitation of nature ſhould have for its object to give a permanent baſe to a colour already formed, to fix it without altering, and to augment perhaps its ſplendour and its intenſity, without attempting to produce a colour.

"In excepting from earthy and metallic ſalts all thoſe of which the acid is not completely ſaturated, which would eaſily attract the humidity of the air, or which would be eaſily diſſolved, you have but a very ſmall number to make experiments on.

"The natural and artificial *ſelenite* gives with oil a paſte without colour, and taſting ſomewhat like honey; its white is better preſerved with a gum, but even in this caſe it reſembles a half tranſparent pap.

"The natural or regenerated *heavy ſpar* is the moſt likely ſalt to produce white. As it is of all others the moſt difficult to diſſolve, it appears after pulverization to be a very fine white, but is ſcarcely touched with oil when it becomes gray and half tranſparent: the mucilage alters it alſo, although leſs diſcernibly; and it does not even reſume its white colour after it becomes dry on the canvas.

"The ſame is the caſe with *calcareous borax*, formed by the ſolution of borax in lime water; its white is completely extinguiſhed with oil, leſs ſo with gum; but it hardens ſo inſtantaneouſly with the latter, that it is impoſſible ever to dilute it again.

"Calcareous tartar, obtained by caſting quicklime into a boiling ſolution of cream of tartar, is affected with oil in the ſame manner as ſelenite, but with mucilaginous water it gives a pretty good white, only poſſeſſed of little reflection, and appearing like plaſter; it applied very well to the canvas, and reſiſted the phlogiſtic vapour.

"According to M. Weber, in his work entitled *Fabriken und Kunſte*, publiſhed 1781, the white, called in Germany *krembſer wieſs*, is nothing but the vitriol

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of lead, prepared by diſſolving lead in nitrous acid, and precipitating it in vitriolic acid; and forming it afterwards into ſolid tablets by means of gum water. It is certain that this reſembles in no ſhape the white called in France the white of crems; at leaſt I never found that it could be diſſolved in vinegar; but I tried the white prepared in M. Weber's manner, and the reſult was the ſame as above, that is to ſay, it turned completely black.

"The vitriols of lead and of biſmuth alter more ſpeedily than the calces of thoſe metals. And thus, with the exception of calcareous tartar, which may be of ſome uſe in water colours, the beſt earthy ſalts on which I have made experiments, may all, or the moſt of them, give a baſe to ſome colours, but cannot conſtitute by themſelves a colour uſeful in painting.

"Of the fifteen known metallic ſubſtances, there are nine which yield white calces: namely, ſilver, mercury, lead, tin, antimony, biſmuth, zinc, arſenic, and manganeſe.

"Of theſe nine ſubſtances, we may almoſt paſs over ſilver and mercury; becauſe, though they yield a very fine white, precipitated by means of cryſtallized vegetable alkali, yet it is ſoon altered when expoſed to the air; that from ſilver changing into black, and that from mercury into yellow.

"It is well known that lead gives a very good white, and one which unites eaſily with oil or ſize; but that it is extremely liable to change, has been my principal object to prove, and the experiments which I have made place it beyond contradiction.

"I ſhall only add, that if there is a preparation able to correct this fault, it ſhould be the precipitation of the earth of this metal in its acetous diſſolution by Pruſſian alkali; but the white which reſults from this preparation becomes ſenſibly browniſh when it is expoſed a few minutes only to the phlogiſtic vapour.

"It would be therefore unreaſonable to perſevere in the uſe of this ſubſtance, or to wiſh to render it fixed, ſince the changes which it undergoes do not alter its nature, and the indeſtructible order of its affinities.—The calx of tin is eaſily applied to any purpoſe, and experiences no change from the concentrated phlogiſtic vapour. Theſe conſiderations induced me to endeavour to obtain this calx perfectly white; and here follows the reſult of my operations: The tin calcined gives a pretty white calx; but whatever attention I paid to take off the red ſurface which the violence of the fire occaſioned, a ſhade of gray always appears when it is diluted. Tin calcined by nitre in fuſion, gives a tarniſhed and groſs calx, which multiplied waſhings could not deprive of a yellowiſh tint.

"Having precipitated, by means of cryſtallized vegetable alkali, a ſolution of Engliſh tin, which had been made in the muriatic acid, after the manner of M. Bayen to extract the arſenic, I had a calx of the greateſt whiteneſs, ſo light that it buoyed up to the ſurface of the liquor, and ſo thin that the greater part of it paſſed through the filter; but it experienced at the ſame time a kind of adherence with the ſalts, which makes the par of it retained by the filter incapable of being pulverized, gummy, half tranſparent, and even a little changed into yellow In this condition it is extinguiſhed when diluted; it is neceſſary, therefore, to moiſten it in boiling water, and afterwards to calcine ſlightly the ſediment after it has had ſufficient time to ſettle.

"I have tried the calcination by means of moiſture, in employing the tin of the pureſt melac, and a rectified nitrous acid, according to the method of Meyer. It formed a very white ſparkling calx, which remained in the filter in the conſiſtency of jelly.—Meanwhile, I obſerved that it was always a little yellow by the mixture of a portion of that earth which took, in the operation, the colour of turbith mineral,

"A very fine white calx is extracted from antimony, calcined by nitre in fuſion; but the earth of this ſemi-metal muſt be placed in the number of thoſe which combine too eaſily with the phlogiſtic vapour. The diaphoretic antimony, grinded in oil, took in ten minutes in my phlogiſtic apparatus a colour ſomewhat like ſulphur.

"The property of biſmuth to give a very fine white calx, known by the name of *magiſtery*, or white ſard, is generally known; it is eaſily prepared, ſince it is only neceſſary to diſſolve the biſmuth in nitrous acid, and to precipitate the ſolution by pure water: it dilutes perfectly with oil and mucilages. But this colour ought to be rejected, as the moſt alterable by the phlogiſtic vapour. It became completely black in ten minutes in my apparatus; and this fact is alſo proved from what happens to women who uſe this colour, when they are expoſed to the vapours of ſulphur, of garlic, or of any putrid ſubſtances.

"Zinc furniſhes by all the proceſſes of calcination and precipitation a pretty white calx, when it is pure and ſeparated from iron; otherwiſe the ſolutions of the vitriol of zinc will become yellow when expoſed to the air. I have precipitated thoſe ſolutions by lime water, by cauſtic, and effervеſcent alkalies; I have calcined this ſemi-metal alone and with nitre; and in all thoſe operations I have obtained an earthy ſubſtance of different degrees of whiteneſs, which, after it was dried and prepared, mixed readily with oil and mucilages without loſing its colour; and which experienced no ſenſible change when expoſed to the phlogiſtic vapour.

"Theſe valuable properties, the chief object of my reſearches, engaged me to multiply my experiments to determine at once the moſt economical proceſs, and the moſt advantageous and infallible preparation.—Thoſe attempts have convinced me, that the calcination of this ſemi-metal alone in a crucible, placed horizontally on the corners of a reverberating furnace, gives the pureſt, the whiteſt, and the leaſt reducible calx; and that to make an excellent colour, it is ſufficient to ſeparate the parts not burned with water, and grind it with a little of the earth of alum or chalk to give it a body. Zinc precipitated in Pruſſian alkali, even in diſtilled vinegar, retains always a ſhade of yellow, does not unite ſo well in oil, and takes a demi-tranſparent conſiſtence like cheeſe.

"White arſenic extinguiſhes much leſs in diluting than one would believe from its ſaline nature; it preſerves its colour beſt in gum water; and it is remarkable, that inſtead of turning black in the phlogiſtic vapour, it takes a very diſtinct ſhade of yellow. This property is ſufficiently ſingular and conſtant to furniſh a new method of analyzing arſenic, ſo as to know it. And this alteration of colour makes it of no uſe in

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in painting, although its deleterious qualities did not forbid the practice.

"The ſemi-metal known by the name of *manganeſe*, gives alſo a white calx. I had at firſt great hopes from this colour, as, contrary to all thoſe extracted from the other metals, it became white by the phlogiſtic vapour. There remained, therefore, but one difficulty to overcome, viz. to ſeparate from the manganeſe the portion of iron which it uſually contained, and which infallibly makes the earth a little yellow. To accompliſh this in the cheapeſt manner, I ſubmitted the black ore of the manganeſe to a long calcination to render its iron inſoluble; I afterwards applied vinegar to it, after the example of M. de la Peyrouſe; and in precipitating the diſſolution by effervescent alkali, I eaſily obtained a pure white precipitate. But I ſoon perceived that the facility with which a colouring body loſes its phlogiſton, is no leſs an inconveniency than that of attracting it, and productive of the ſame alterations.

"The white of manganeſe became very ſoon yellow when expoſed to the air; and this is not to be aſcribed to the iron contained in it, ſince neither the galls nor Pruſſian alkali had diſcovered any of it in the diſſolution. This ſubſtance, therefore, can be of no uſe in producing a white colour for painting."

The experiment by which M. de Morveau tried the colours not alterable by the phlogiſtic vapour, was performed before the academy, the prince of Condé being preſident. "I placed (ſays he) in my apparatus pieces of cloth, on which were laid the white of calcareous tartar in water, different preparations of white from tin and zinc, in oil and water; and I allowed them to continue expoſed to the phlogiſtic vapour during a ſitting of the academy: if they were not altered, their ſuperiority over the whites in uſe would be ſufficiently eſtabliſhed. The ſitting continued for near an hour; and the bottle having been opened, all the colours continued to have the ſame ſhade which they had before. I can, therefore, recommend to painters thoſe three whites, and particularly that of zinc, the preparation of which is expoſed to leſs variation, the ſhade more lively and uniform, and moreover it is fit for all purpoſes, and perhaps procured at leſs expence.

"I will aſſert farther, that it may be procured in ſufficient quantities to ſupply the place of ceruſe in every branch of the art, even in interior houſe painting:—I would recommend it, leſs with the view of adding new ſplendour to this kind of ornament, than for the ſafety of thoſe who are employed in it, and perhaps for the ſafety of thoſe who inhabit houſes ornamented in this manner.

"But, without being too ſanguine, although the proceſſes in the fabrication be ſimplified in proportion to the demand, as is uſually the caſe, yet there is reaſon to apprehend that the low price of ceruſe will always give it the preference in houſe-painting. With regard to thoſe who apply colours to nobler purpoſes, they will not heſitate to employ the white of zinc. I am aſſured that four franks is paid for the pound of the white of crems; and I believe the white in queſtion, prepared in the manner which I have pointed out, might be ſold for ſix.

"M. Courtors, connected with the laboratory of the academy, has already declared that it is uſed for houſe-painting: leſs, however, in regard to its unalterability, than to its ſolubility: and this can be the more readily believed, as the flower of zinc enters into many compoſitions of the apothecary. The ſame M. Courtors has arrived at the art of giving more body to this white, which the painters ſeemed to deſire, and alſo of making it bear a compariſon with white lead either in water or oil. The only fault found with it, is its drying ſlowly when uſed in oil; but ſome experiments which I have made, incline me to believe that this fault may be eaſily remedied, or at leaſt greatly corrected, by giving it more body. At any rate, it may be rendered ſiccative at pleaſure, by adding a little vitriol of zinc or copperas ſlightly calcined.

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"Painters already know the properties of this ſalt, but perhaps they do not know that it mixes with the white of zinc better than with any other colour; the reaſon is, they have chemically the ſame baſe. It is prepared by purging the white copperas of that ſmall portion of iron which would render it yellow; and this is eaſily done in digeſting its ſolution, even when cold, on the filings of zinc.

"The mixture of this ſalt thus prepared is made on the pallet, without producing any alteration, and a ſmall quantity will produce a great effect."

APPENDIX.

We ſhall here add an account of ſome proceſſes which have been recommended, on account of their cheapneſs, for preparing different materials for economical painting. The firſt is a method of houſe painting with milk, by Cadet de Vaux *. The following are the directions for preparing this paint.

* *Nich. Jour.* v. 248. 4to.

"Take of ſkimmed milk a pint, which makes two pints of Paris, or nearly two quarts Engliſh; freſh ſlaked lime, ſix ounces, (about ſix and a half ounces avoirdupois); oil of caraways, or linſeed, or nut, four ounces; Spaniſh white (whiting) three pounds: put the lime into a ſtone-ware veſſel, and pour upon it a ſufficient quantity of milk to make a mixture reſembling thin cream; then add the oil a little at a time, ſtirring it with a ſmall ſpatula; the remainder of the milk is then to be added, and laſtly, the Spaniſh white. Skimmed milk in ſummer is often clotted, but this is a circumſtance of no conſequence to our object, becauſe the contact with the lime ſoon reſtores its fluidity. But it muſt on no account be ſour, becauſe in that caſe it would form with the lime a kind of calcareous acetite, capable of attracting moiſture.

"The lime is ſlaked by dipping it in water, out of which it is to be immediately taken, and left to fall in pieces in the air.

"The choice of either of theſe oils is indifferent; nevertheleſs for white paint the oil of caraways is to be preferred, becauſe colourleſs. The commoneſt oils may be uſed for painting with the ochres.

"The oil when mixed in with the milk and lime diſappears, and is totally diſſolved by the lime, with which it forms a calcareous ſope.

"The Spaniſh white is to be crumbled, or gently ſpread on the ſurface of the fluid, which it gradually imbibes, and at laſt ſinks; at this period it muſt be well ſtirred in. This paint may be coloured like diſtemper (or ſize colour) with levigated charcoal, yellow ochre, &c.

"And

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"And it is used in the same manner:

"The quantity here prescribed is sufficient for the first coat of six toises, or 27 square yards English.

"The price of this quantity amounts to nine sols, which reduces the price of the square toise to one sol, six deniers, prime cost."

And to give this paint a greater degree of solidity, that it may be employed as a substitute for oil paint, the author adds to the proportions of the paint for out-door works, of slaked lime, oil, white Burgundy pitch, each two ounces. The pitch is to be melted with a gentle heat in the oil, and then added to the smooth mixture of the milk and lime. In cold weather this mixture is to be warmed, that it may not occasion too speedy cooling of the pitch, and to facilitate its union with the milk of lime. This paint, it is said, has some analogy with that known by the name of *encaustic*. It has been employed, the author informs us, for outside shutters, formerly painted with oil, and is preferable to painting with lead, objects that are exposed to putrid exhalations, which are apt to blacken paint composed of metallic matters, especially of lead.

A method has been proposed by Mr Vanherman, for making cheap and durable paints with fish oil. The paints thus prepared, beside their cheapness, are not subject to blister or peel off by exposure to the weather. They may be manufactured of any colour, and laid on by ordinary labourers. The price of some of them is so low as twopence, and the highest does not exceed threepence per pound, in a state fit for use. The author adds, that white lead ground with prepared fish oil, and thinned with linseed oil, surpasses any white hitherto employed for resisting all weathers, and retaining its whiteness. The following is an account of his processes †.

† *Transact. of the Society for Arts*, &c. vol. xxiii.

"*To refine one Ton of Cod, Whale, or Seal Oil, for painting, with the cost attending it.*

One ton of fish oil, or 252 gallons,	L.36	0	0
32 gallons of vinegar, at 2s. per gallon,	3	4	0
12 lbs. litharge, at 5d. per lb. -	0	5	0
12 lbs. white copperas, at 6d. ditto,	0	6	0
12 gallons of linseed oil, at 4s. 6d. per gallon,	2	14	0
2 gallons of spirits of turpentine, at 8s. ditto,	0	16	0
	L.43	5	0

252 gallons of fish oil,
12 ditto linseed oil,
2 ditto spirits of turpentine,
32 ditto vinegar.

298 gallons, worth 4s. 6d. per gallon.

Which produces	L.67	1	0
Deduct the expence	43	5	0
	L.23	16	0 profit.

"*To prepare the Vinegar for the Oil.*

"Into a cask which will contain about forty gallons, put 32 gallons of good common vinegar; add to this 12 pounds of litharge, and 12 pounds of white copperas in powder; bung up the vessel, and shake and roll it well twice a day for a week; when it will be fit to put into a ton of whale, cod, or seal oil; (but the Southern whale oil is to be preferred, on account of its good colour, and little or no smell); shake and mix all together, when it may settle until the next day; then pour off the clear, which will be about seven eighths of the whole. To this clear part add twelve gallons of linseed oil, and two gallons of spirit of turpentine; shake them well together, and after the whole has settled two or three days, it will be fit to grind white lead, and all fine colours in; and, when ground, cannot be distinguished from those ground in linseed oil, unless by the superiority of its colour. Painting in Oil Colours.

"If the oil is wanted only for coarse purposes, the linseed oil and oil of turpentine may be added at the same time that the prepared vinegar is put in, and after being well shaken up, is fit for immediate use without being suffered to settle.

"The vinegar is to dissolve the litharge; and the copperas accelerates the dissolution, and strengthens the drying quality.

"The residue, or bottom, when settled, by the addition of half its quantity of fresh lime-water, forms an excellent oil for mixing with all the coarse paints for preserving outside work.

"*Note.* All colours ground in the above oil, and used for inside work, must be thinned with linseed oil and oil of turpentine.

"☞ The oil mixed with lime-water, I call *incorporated oil.*

"*The method of preparing, and the expence of the various Impenetrable Paints.*

"First—*Subdued Green.*

Fresh lime water, 6 gallons,	L.0	0	3
Road dirt finely sifted, 112 pounds, -	0	1	0
Whiting, 112 ditto, - -	0	2	4
Blue-black, 30 ditto, - -	0	2	6
Wet blue, 20 ditto, - -	0	10	0
Residue of the oil, 3 gallons, -	0	6	0
Yellow ochre in powder, 24 pounds,	0	2	0
	L.1	4	1

"This composition will weigh 368 pounds, which is scarcely one penny per pound. To render the above paint fit for use, to every eight pounds add one quart of the incorporated oil, and one quart of linseed oil, and it will be found a paint with every requisite quality, both of beauty, durability, and cheapness, and in this state of preparation does not exceed twopence halfpenny per pound; whereas the coal tar of the same colour is sixpence."

To this we shall only add the following receipt for a constant white for inside painting. This paint, the author observes, is not entirely free from smell in the operation, but becomes dry in four hours, at the end of which time the smell is entirely dissipated.

"*White Paint.*

"To one gallon of spirits of turpentine, add two pounds of frankincense; let it simmer over a clear fire until dissolved; strain it and bottle it for use. To one gallon

Pair, Pairing. gallon of my bleached linſeed oil, add one quart of the above, ſhake them well together and bottle it alſo. Let any quantity of white lead be ground with ſpirits of turpentine very fine; then add a ſufficient portion of the laſt mixture to it, until you find it fit for laying on. If in working it grows thick, it muſt be thinned with ſpirits of turpentine.—It is a flat or dead white." Pairing, Paiſley.

PAI

PAIR; two of a ſort, a couple.

PAIRING, the uniting or joining in couples.

The inſtinct of pairing is beſtowed on every ſpecies of animals to which it is neceſſary for rearing their young; and on no other ſpecies. All wild birds pair; but with a remarkable difference between ſuch as place their neſts on trees and ſuch as place them on the ground. The young of the former, being hatched blind, and without feathers, require the nurſing care of both parents till they be able to fly. The male feeds his mate on the neſt, and cheers her with a ſong. As ſoon as the young are hatched, ſinging yields to a more neceſſary occupation, that of providing food for a numerous iſſue; a taſk that requires both parents.

Eagles and other birds of prey build on trees, or on other inacceſſible ſpots. They not only pair, but continue in pairs all the year round; and the ſame pair procreates year after year. This at leaſt is the caſe of eagles: the male and female hunt together, unleſs during incubation, at which time the female is fed by the male. A greater number than a ſingle pair are never ſeen in company.

Kames's Sketches, vol. i. 198.

Gregarious birds pair, in order probably to prevent diſcord in a ſociety confined to a narrow ſpace. This is the caſe particularly of pigeons and rooks. The male and female ſit on the eggs alternately, and divide the care of feeding their young.

Partridges, plovers, pheaſants, ſea fowl, grouſe, and other kinds that place their neſts on the ground, have the inſtinct of pairing; but differ from ſuch as build on trees in the following particular, that after the female is impregnated, ſhe completes her taſk without needing any help from the male. Retiring from him, ſhe chooſes a ſafe ſpot for her neſt, where ſhe can find plenty of worms and graſs ſeed at hand; and her young, as ſoon as hatched, take foot, and ſeek food for themſelves. The only remaining duty incumbent on the dam is, to lead them to proper places for food, and to call them together when danger impends. Some males, provoked at the deſertion of their mates, break the eggs if they ſtumble on them. Eider ducks pair like other birds that place their neſts on the ground; and the female finiſhes her neſt with down plucked from her own breaſt. If the neſt be deſtroyed for the down, which is remarkably warm and elaſtic, ſhe makes another neſt as before. If ſhe is robbed a ſecond time, ſhe makes a third neſt; but the male furniſhes the down. A lady of ſpirit obſerved, that the eider duck may give a leſſon to many a married woman, who is more diſpoſed to pluck her huſband than herſelf. The black game never pair in ſpring, the cock on an eminence crows, and claps his wings; and all the females within hearing inſtantly reſort to him.

Pairing birds, excepting thoſe of prey, flock together in February, in order to chooſe their mates.

PAI

They ſoon diſperſe; and are not ſeen afterward but in pairs.

Pairing is unknown to quadrupeds that feed on graſs. To ſuch it would be uſeleſs; as the female gives ſuck to her young while ſhe herſelf is feeding. If M. Buffon deſerves credit, the roe deer are an exception. They pair, though they feed on graſs, and have but one litter in a year.

Beaſts of prey, ſuch as lions, tigers, wolves, pair not. The female is left to ſhift for herſelf and for her young; which is a laborious taſk, and often ſo unſucceſsful as to ſhorten the life of many of them. Pairing is eſſential to birds of prey, becauſe incubation leaves the female no ſufficient time to hunt for food. Pairing is not neceſſary to beaſts of prey, becauſe their young can bear a long faſt. Add another reaſon, that they would multiply ſo faſt by pairing, as to prove troubleſome neighbours to the human race.

Among animals that pair not, males fight deſperately about a female. Such a battle among horned cattle is finely deſcribed by Lucretius. Nor is it unuſual for ſeven or eight lions to wage bloody war for a ſingle female.

The ſame reaſon that makes pairing neceſſary for gregarious birds, obtains with reſpect to gregarious quadrupeds; thoſe eſpecially who ſtore up food for winter, and during that ſeaſon live in common. Diſcord among ſuch would be attended with worſe conſequences than even among lions and bulls, who are not confined to one place. The beavers, with reſpect to pairing, reſemble birds that place their neſts on the ground. As ſoon as the young are produced, the males abandon their ſtock of food to their mates, and live at large; but return frequently to viſit them while they are ſuckling their young.

Hedgehogs pair, as well as ſeveral of the monkey kind. We are not well acquainted with the natural hiſtory of theſe animals; but it would appear that the young require the nurſing care of both parents.

Seals have a ſingular œconomy. Polygamy ſeems to be a law of nature among them, as a male aſſociates with ſeveral females. The ſea turtle has no occaſion to pair, as the female concludes her taſk by laying her eggs in the ſand. The young are hatched by the ſun, and immediately crawl to the ſea.

PAISLEY, a town of Renfrewſhire, in Scotland, ſituated about ſix miles and a half weſt of Glaſgow, on the river White Cart, over which there are two ſtone bridges of two arches each, and one which conſiſts of three arches. The town is very ancient; but was of much leſs conſequence formerly than it is at preſent. "No ſatisfactory etymology has hitherto occurred of the name *Paiſley*. The following has been ſuggeſted by a good Gaelic ſcholar: 'A ridge of rocks that runs acroſs the river, and forms a beautiful caſcade, would, prior to the building

Statiſtical Account of Scotland, vol. vii.

Paiſley. building of the town, be undoubtedly the moſt ſtriking object that this place would preſent. The brow or face of a rock is in Gaelic *Pais-licht*. A church in front of the rock would be the church in *Pais-licht*. A church did ſtand here previous to 1160: it is named in the foundation charter *Eccleſia de Paſelet*, Latinized, in the records of the monaſtery, *Paſtatum*, an eaſy derivative from *Pais-licht* in all probability the original of the modern *Paiſley*. It was erected into a burgh of barony by James IV. in the year 1488, at that time probably deriving all its importance from the rich monaſtery which had been eſtabliſhed there for ſeveral ages; for George Schaw, who was then abbot of that monaſtery, obtained this privilege from the king. Even in Mr Crawford's time, who wrote the hiſtory of the ſhire of Renfrew near the beginning of the 18th century, it ſeems to have been but an inconſiderable place; for he deſcribes it as conſiſting only of one principal ſtreet, about half a mile in length, with ſeveral lanes belonging to it; whereas now the town, with its ſuburbs, occupies ſuch an extent of ground, that ſtrangers are apt to conſider it as, next to Edinburgh and Glaſgow, the largeſt and moſt populous town in Scotland. Its buildings of late years have been greatly improved; its ſtreets are well paved; and the different parts of the town and ſuburbs, where the river intervenes, are connected with one another by three bridges at convenient diſtances."

The affairs of the community are managed by three bailies, of which the eldeſt is commonly in the commiſſion of the peace, a treaſurer, a town clerk, and 17 counſellors, who are annually elected upon the firſt Monday after Michaelmas. It enjoys all the powers neceſſary for government and police, without any of the burdens to which royal boroughs are ſubjected. The freedom of the place is conferred on very moderate terms. The revenues of the town are not great, but they have been managed to the beſt advantage. The rapid increaſe of the place has not been attended with a proportional increaſe of revenue; therefore ſeveral neceſſary improvements, and intended public buildings, are not yet carried into execution. It gives the title of baron to the earls of Abercorn; the firſt of whom was a younger ſon of the Duc de Chatelherault. The *black book of Paiſley*, frequently mentioned in Scottiſh hiſtory, was a chronicle of the public affairs and remarkable events, kept by the monks who reſided in the monaſtery. It agreed in every material fact with the *Scoti-chronicon* of Fordun; and is by many thought to be the ſame performance.

The old part of the town runs from eaſt to weſt upon the ſouth ſlope of a ridge of hills, from which there is a fine proſpect of the city of Glaſgow and the adjacent country; but to the ſouthward, the view terminates in a ridge of green hills, about two miles diſtant. Including the late buildings and ſuburbs, it is fully a mile long, and nearly as much in breadth. On the eaſt ſide of the river Cart, ſtand the abbey and new town. This new town was ſome years ago feued off by the earl of Abercorn, and now conſiſts of a number of handſome buildings. The ſtreets are laid off in a regular manner, but (rather unfortunately for the conveniency and elegance of ſome of the houſes) not in right angles. Here the earl of Abercorn has built at his own expence one of the largeſt, moſt commodious, and moſt elegant inns in Scotland. In the vicinity of it was propoſed alſo to build ſeveral convenient and neceſſary market places. A little way ſouth of the inn ſtands the abbey church, the only one which Paiſley formerly required. Paiſley. This church, when entire, has been a moſt noble building, and conſiſted of ſeveral diſtinct and ſeparate places of worſhip: what now remains of this magnificent Gothic ſtructure is not yet unworthy the notice of the curious in antiquities. Mr Pennant ſays, the great north window is a noble ruin, the arch very lofty, the middle pillar wonderfully light, and ſtill entire: only the chancel now remains, which is divided into a middle and two ſide aiſles, by very lofty pillars, with Gothic arches; above theſe is another range of pillars much larger, being the ſegment of a circle, and above a row of arched niches from end to end, over which the roof ends in a ſharp point. The outſide of the building is decorated with a profuſion of ornaments, eſpecially the great weſt and north doors, than which ſcarce any thing lighter or richer can be imagined.

The town of Paiſley continued a part of the original or Abbey pariſh of Paiſley till the year 1738; when the magiſtrates and council having purchaſed the right of patronage from the then earl of Dundonald, a new church was built, and the town was erected into a ſeparate pariſh. This is called the *Laigh Church*, is built in the form of a Greek croſs, very well laid out, and capable of containing a great number of people. In 1756 another church was built, upon a very extended plan, to accommodate its multiplied inhabitants; in which, though it is one of the largeſt in Scotland, yet the moſt diſtant of the congregation can hear a tolerably good ſpeaker with eaſe and diſtinctneſs; and as it ſtands upon the higheſt part of the town, it was afterwards ornamented with a lofty and well-proportioned ſpire, viſible at a great diſtance. This is called the *High Church*, and is a very fine building: it is an oblong ſquare of 82 feet by 62 within the walls, built of free ſtone well ſmoothed, having ruſtic corners and an elegant ſtone cornice at the top. In the conſtruction of the roof (which is a pavilion covered with ſlate, having a platform covered with lead on the top), there is ſomething very curious, and it is admired by every perſon of taſte. In 1781, the number of the inhabitants ſtill rapidly increaſing, another church, called the *Middle Church*, was built, not quite ſo large as the former, but very handſomely and elegantly finiſhed: and in the following year, the town was divided and erected into three ſeparate pariſhes, excluſive of the Abbey pariſh, and named according to their reſpective churches.

There are two large diſſenting congregations in the town; thoſe of the Antiburgher perſuaſion and the Relief. The firſt of theſe has exiſted there for upwards of 30 years; the other is of a late date. There is beſides a ſmall congregation of Cameronians.

The townhouſe is a very handſome building of cut ſtone, with a tall ſpire and a clock. The fleſh market has a genteel front of cut ſtone, and is one of the neateſt and moſt commodious of the kind in Britain. Butchers meat, butter, cheeſe, fiſh, wool, and ſeveral other articles, are ſold here by what they call the tron pound, of 22 Engliſh ounces and a half.

The poors houſe is a large building, very well laid out; and ſtands oppoſite to the quay, in a fine free air. It is ſupported by a ſmall tax laid upon the inhabitants quarterly.

Cloſe by the Abbey church is the earl of Abercorn's burial

Paiſley. burial place, the greateſt curioſity in Paiſley. It is a vaulted Gothic chapel, without pulpit, pew, or any other ornament, but has the fineſt *echo* perhaps in the world. When the end door (the only one it has) is ſhut, the noiſe is equal to a loud and not very diſtant clap of thunder. If you ſtrike a ſingle note of muſic, you have the ſound gradually aſcending, with a great number of repetitions, till it dies away as if at an immenſe diſtance, and all the while diffuſing itſelf through the circumambient air. If a good voice ſings, or a muſical inſtrument is well played upon, the effect is inexpreſſibly agreeable. The *deepeſt*, as well as the moſt *acute tones*, are diſtinctly reverberated, and theſe in regular intervals of time. When a muſical inſtrument is ſounded, it has the effect of a number of inſtruments of a like ſize and kind playing in concert. When a number of different inſtruments in uniſon ſound the ſame note, a good ear is able to diſtinguiſh the variety of ſound produced by each. A ſingle inſtrument ſounding a particular note, and then inſtantly its fifth, or any other concordant note, the two ſounds can be heard, as it were, running into and uniting with each other in a manner peculiarly agreeable. But the effect of a variety of inſtruments playing in concert is particularly charming, and muſt excite ſuch emotions in the ſoul as it is impoſſible to deſcribe. In this chapel is the monument of Marjory Bruce (A); ſhe was daughter of Robert Bruce, and wife of Walter, great ſteward of Scotland, and mother of Robert II. In this ſame chapel were interred Elizabeth Muir and Euphemia Roſs, both conſorts to Robert II.

A particular account of the abbey of Paiſley would fill many pages. It was founded as a priory for monks of the order of Clugni about the year 1160 by Walter great ſteward of Scotland. It was afterwards raiſed to the rank of an abbacy; and the lands belonging to it were by Robert II. erected into a regality, under the juriſdiction of the abbot. After the Reformation, the abbacy was ſecularized by the pope in favour of Lord Claud Hamilton, third ſon of the duke of Chatelherault, in reward of his ſteady adherence to the cauſe of Queen Mary; and, in 1588, it was by the king and parliament erected into a temporal lordſhip, and Lord Claud was created Lord Paiſley. The revenues of the abbacy were very conſiderable: They conſiſted of the tythes of 28 different pariſhes, with the property of the lordſhips of Paiſley, of Kilpatrick in Dumbartonſhire, and of Monkton in Ayrſhire, extending each to a hundred merk land; and the forty pound land of Glen in Lochwinnoch; with the lands of Achengown, Grange, &c. and a conſiderable detached property in different parts of the kingdom. All this property, with the patronage of the ſeveral churches, fell to Lord Claud Hamilton, laſt abbot of Paiſley. It continued in that family till 1563, when his grandſon James earl of Abercorn ſold the lordſhip of Paiſley to the earl of Angus, who next year ſold it to William Lord Cochran, Kilpatrick to Sir John Hamiltoun of Orbiſtoun, Monktoun to Lord Bargenny, and Glen to Lord Semple and others. Great part of the lordſhip of Paiſley was at different times ſold off by the family of Dundonald; and what remained of it was in 1764 repurchaſed by the late earl of Abercorn. The fabric of the abbey owed much of its magnificence to Abbot George Schaw, who about 1484 enlarged and beautified the building, ſurrounding the church, the precincts of the convent, the gardens, and a ſmall deer park, with a noble wall of hewn freeſtone. The abbey was, after the Reformation, ſucceſſively the ſeat of the earls of Abercorn and Dundonald. The late earl of Dundonald demoliſhed the ancient gateway; and, by feuing off the immediately adjoining grounds for building, entirely changed the appearance of the place. As it was thus rendered totally unfit for a family reſidence, it has ſince that time been let out into ſeparate dwellings, and is now in a very mean and almoſt ruinous ſtate. The wall ſtood almoſt entire till 1781, when the garden being feued off for building upon by the late earl of Abercorn, the wall was ſold to the feuers, and the ſtones of it employed in their houſes. Paiſley.

The veſtiges of the Roman camp and *prætorium*, at the weſt end of the town, are at preſent almoſt annihilated. It was ſuppoſed to be vaulted underneath.

The number of inhabitants in the town of Paiſley amounted in 1695 to 2200; in 1755 they were 4290; in 1782, 11,100; and in 1792 they were 13,800. At preſent the number of inhabitants in the town and ſuburbs certainly exceeds 25,000.

Paiſley is now the firſt manufacturing town in Scotland, and is greatly celebrated on account of ſome of its branches. The manufactory of ſilk gauze, in this reſpect, firſt claims our notice. This branch is brought here to the utmoſt perfection, and is wrought to an amazing variety of patterns. It has been computed, that there have been no leſs than 5000 weavers employed in Paiſley and in the country adjacent; and the number of winders, warpers, clippers, and others neceſſary in other parts of the ſilk manufacture, has been likewiſe computed to be no leſs than 5000. Each loom will produce in an average value 70l. yearly; the whole will then be 350,000l.

It appears, from the beſt calculation that could be made, that in the year 1784 the manufactures of Paiſley in ſilk gauze, lawn and linen gauze, and white ſewing thread (B), amounted to the value of 579,185l. 16s. 6d. and that no fewer than 26,484 perſons were employed in carrying them on. It is difficult to give an exact account of the ſtate of its manufactures at preſent. The ſilk branch has evidently declined, but the muſlin has ſo far

(A) Her ſtory is ſingular: In the year 1317, when ſhe was big with child, ſhe broke her neck in hunting near this place: the Cæſarean operation was inſtantly performed, and the child taken out alive; but the operator chancing to hurt one eye with his inſtrument, occaſioned the blemiſh that gave him afterwards the epithet of *Blear-eye*; and the monument is alſo ſtyled that of *Queen Bleary*. Elizabeth Muir died before the acceſſion of her huſband Robert.

(B) This was introduced into this town about 60 or 70 years ago. The method of making what is called *glazed white thread*, has been diſcovered and brought to as great perfection as that made by Mr Leland and Son, London. The value of this branch is computed at about 60,000l. annually.

Paiſley. far come in its room, and the thread manufacture has conſiderably increaſed. There is, however, reaſon to conclude, that, though it is daily advancing, it has not yet recovered its former greatneſs. Beſides theſe principal manufactures, there are ſome others carried on there of too much importance to be overlooked: for inſtance, conſiderable tan works, four in number, two ſoap and candle works, a manufacture of ribbons, and another of inkle or tape. In 1789 the annual value of all the manufactures in Paiſley of every ſort amounted to 660,385l. 16s.

In the various weaving branches there were employed at Whitſunday 1791, in the ſuburbs of Paiſley, 1108 looms, which, added to 2494 employed in the town, gives 3602 in all. But it is to be obſerved, that the extent to which the weaving branches are carried on by the manufacturers in Paiſley, is not to be judged of from the number of looms in the town and ſuburbs. Beſides about 150 in the country part of the pariſh, there are great numbers employed by them in the villages of Neilſtoun, Barhead, Beith, Dalry, Kilwinning, &c. &c. In 1744, when all the buſineſs was confined to the town and ſuburbs, there were 867 looms at work. —The thread-making in Abbey pariſh employs 9 mills, which, added to 128 employed in Paiſley, makes 137 in all. The number in 1744 was 93. The ſpinning of cotton was introduced into Abbey pariſh in 1783. The principal ſeat of that manufactory is at Johnſtoun, a neat and regularly built village about three miles weſt from Paiſley, upon the eſtate of Mr Houſton of Johnſtoun. The feuing of that village was begun in 1782; and it contained, at Whitſunday 1792, 293 families, or 1434 ſouls. There are five companies eſtabliſhed in it for cotton ſpinning. Two of theſe carry on their principal operations by water machinery. In the two mills employed in them, there are going at preſent 11,672 ſpindles; but, when the whole machinery in both ſhall be completed, there will be 22,572. The number of perſons, young and old, at preſent employed in both mills is 660. There is alſo in the neighbourhood of Paiſley a calico printing work. Copperas has been long manufactured at Lord Glaſgow's coal works; and for ſeveral years paſt the manufacture of alum has been conducted on a very extenſive ſcale at the ſame place.

The bleaching buſineſs in the Abbey pariſh is carried on to a very conſiderable extent. There are 10 fields for whitening muſlins and lawns, and about as many for thread, almoſt wholly employed by the manufacturers in Paiſley. About 300 perſons are at work in this branch of buſineſs, of whom about 240 are women, who are hired for the ſeaſon. A ſoap and candle manufacture pays about 2000l. of duty per annum to government, and has in ſome years paid upwards of 3000l. A black and hard ſoap manufacture, 4500l. per annum. The ſtarch manufacture is but lately eſtabliſhed. The diſtillery buſineſs is to be mentioned under this head: it has for ſome time paſt been carried on to a great extent, and the ſpirit manufactured in great perfection. A conſiderable quantity of it is exported, but too much of it is conſumed at home (c).

The river on which Paiſley ſtands runs from ſouth to north; and falls into the Clyde, after it has joined the conflux of the rivers Griſe and Black Cart at Inchinnan bridge, about three miles below the town. At ſpring tides, veſſels of 40 tons burden come up to the quay. The communication by water is of great importance to the inhabitants: for in this way they are frequently ſupplied with fiſh of different kinds, and can ſend their goods and manufactures to Port Glaſgow and Greenock, and to Glaſgow likewiſe; and now, by means of the great canal, they have alſo a communication with the frith of Forth. Paiſley || Paix.

The air here is moiſt; a neceſſary conſequence of the prevailing ſouth-weſt winds, which, coming loaded with vapour from the Atlantic, produce frequent and heavy rains. The effects of this moiſt atmoſphere appear in rheumatiſms, quinſeys, pneumatic ailments, and all the tribe of inflammatory diſorders. Upon the whole, however, neither the town nor country adjacent can be ſaid to be unhealthy. Contagions, indeed, at times viſit this as other places, which run their uſual courſe as epidemics; but none are remembered of any uncommon violence except a pleuriſy in ſummer 1771, and which, contrary to the received opinion, was truly epidemic. There are no diſorders that can be ſaid to be endemic, unleſs ſcrofula is to be excepted, which is ſtill but too common. This has been aſcribed to the water uſed by the inhabitants of Paiſley: It more probably proceeded from, and certainly was greatly aggravated by, poor living, and by the damp ſhops which were neceſſary for the linen manufacture; for ſince ſilk weaving became the general employment, and increaſe of trade has introduced better living, this diſorder is leſs frequent. From the ſame cauſes probably it is that ſwelled and ſore legs, once extremely common here, are now but rarely met with. Dyſentery raged with great violence in 1765; ſince that time it has been ſcarcely complained of. Nervous fevers at times appear; but they are neither very general nor uncommonly fatal. It is to be apprehended, that the confinement and ſedentary poſture of the weaver, and the laborious life of the bleacher, are frequent cauſes of conſumptive complaints. Intermittents, which, from the damp air, and adjoining moſs, might be expected to be common, are not ſo much as known. W. Long. 4. 20. N. Lat. 55. 52.

PAITA, a ſea-port of America, in Peru, and in the audience of Quito. The town conſiſts of about 200 houſes but one ſtory high; and the walls are made of ſplit cane and mud, and the roofs only a covering of leaves. The only defence of Paita is a fort without either ditch or outwork; but it is ſurrounded by a brick wall of little or no ſtrength, on which are mounted eight pieces of cannon. It was frequently plundered by the bucaniers; and Commodore Anſon got poſſeſſion of its fort in 1741, and took and burnt the town becauſe the governor refuſed to ranſom it. W. Long. 81. 19. S. Lat. 6. 12.

PAIX, or Port Paix, a town on the north coaſt of the iſland of Hiſpaniola, which has a pretty good harbour. W. Long. 72. 55. N. Lat. 19. 58.

PALACE,

(c) Of the capital, and number of perſons employed in the manufactures, and of the revenue paid to government from them, it is obvious, that the amount, from numerous circumſtances, muſt be extremely variable.

Palace ‖ Palæmon.

PALACE, PALATIUM, a name generally given to the dwelling houſes of kings, princes, and other great perſonages; and taking different epithets, according to the quality of the inhabitants, as *imperial* palace, *royal* palace, *pontifical* palace, *cardinal* palace, *ducal* palace, *epiſcopal* palace, &c.

It is cuſtomary in China to build palaces in honour of great anceſtors. Hu-pi-lay, of the Mogul empire, in the year 1263, built one for his anceſtors; and he is the firſt who borrowed this Chineſe cuſtom. Amongſt the works of the ancient Egyptians, we have an account, in the Ancient Univerſal Hiſtory, of a moſt magnificent palace in the Upper Egypt, not far from Aſwan, the ancient Syene; the ruins whereof are enough to ſtrike a ſpectator with aſtoniſhment. It is as large as a little city, having four avenues of columns, leading to as many porticoes. At each gate, between two pillars of porphyry, ſtand two gigantic figures of fine black marble, armed with maces. The avenues conſiſt of columns ſet three and three together, in a triangle, on one pedeſtal: on the chapiter of each triangle is placed a ſphinx and a tomb alternately. Every column is 70 feet high, all of one ſtone. There are in all the four avenues about 5000 or 6000 of theſe columns, a great many of which are fallen down.

The firſt hall of this palace is adorned with pieces of hiſtory, which ſeem as freſh as if the painting had not been long finiſhed. In ſome places they have repreſented the hunting of antelopes; in others, feaſts, and a great many young children playing with all kinds of animals. From thence you go into other apartments, incruſted with marble, the roof being ſupported with pillars of porphyry and black marble. Notwithſtanding the vaſt quantity of rubbiſh, our author made ſhift to get up to the top of this building, from whence he had a proſpect of the ruins of the greateſt city that ever had been, as he thought, in the world. He ſuppoſes it might be the ancient Thebes; but that city ſtood much lower.

Lucas, vol. iii.

PALACE-Court. See MARSHALSEA.

PALÆMON, or MELICERTA. See MELICERTA.

PALÆMON, Q. *Rhemmius*, a famous grammarian of Rome, in the reign of Tiberius. He was born of a ſlave at Vienza. We are told he was firſt brought up in the buſineſs of a weaver: but attending his maſter's ſon to ſchool, he uſed this opportunity to procure knowledge; and acquired ſo much ſkill in the common learning, that he obtained his freedom, and became a teacher or preceptor at Rome. His claim to learning cannot be queſtioned, ſince he is recorded as a ſcholar even by Juvenal:

> *Quis gremio Enceladi doctique Palæmonis affert,*
> *Quantum grammaticus meruit labor?* Sat. vii.

He had alſo an excellent memory, a ready elocution, and could make verſes extempore. On account of theſe qualities, notwithſtanding his debauched courſe of life, which was ſuch that nobody was more unworthy to have the preceptorſhip of youth, he held the firſt rank among thoſe of his profeſſion. But his arrogance ſurpaſſed his merit: he had the confidence to aſſert, that learning was born when he was born, and would die when he died; and that Virgil had inſerted his name in his Eclogues by a certain prophetic ſpirit: for that he, Palæmon, would infallibly become one day ſole judge and arbiter of all poetry. He was exceſſively prodigal for the gratification of his voluptuous humour; inſomuch that neither the immenſe ſums he gained by teaching, nor the great profit he made, both by cultivating his lands and in the way of traffic, proved a ſufficient fund to ſupport his extravagancies. We have only ſome fragments of his works.

Palæologus ‖ Palæſtra.

PALÆOLOGUS, MICHAEL, a very able man who was governor of Aſia under the emperor Theodorus Laſcaris; and who, by various ſtratagems and cruelties, procured the empire for himſelf and his poſterity. See CONSTANTINOPLE, from N° 145. to the end of that article.

PALÆPAPHOS (Strabo, Virgil, Pliny), a town of Cyprus, where ſtood a temple of Venus; and an adjoining town called *Neo Paphos;* where St Paul ſtruck Elymas blind, and converted the proconſul Sergius Paulus.

PALÆSTRA, in Grecian antiquity, a public building where the youth exerciſed themſelves in wreſtling, running, playing at quoits, &c. To prevent the combatants from hurting themſelves by falling, the bottom of the palæſtra was covered with duſt or gravel. Some will have the palæſtra to be only a part of the gymnaſium. Many authors imagine that the palæſtra was of two kinds; the one for the exerciſe of the body, the other for the cultivation of the mind; but the derivation of the word ſeems to confine it to bodily exerciſe.

We have this account of the palæſtræ in Barthelemi's Anacharſis †: "They are nearly of the ſame form with the gymnaſia. We viſited the apartments appropriated to all the ſpecies of baths; thoſe where the wreſtlers leave their clothes, where they rub their bodies with oil to render their limbs ſupple, and where they roll themſelves in the ſand in order to give their antagoniſts a hold. † Vol. ii.

"Wreſtling, leaping, tennis, and all the exerciſes of the lyceum, were here repeated before us with greater varieties, and with more ſtrength and ſkill on the part of the performers. Among the different groups before us, we diſtinguiſhed men of the moſt perfect beauty, and worthy of ſerving as models for artiſts: ſome with vigorous and boldly marked outlines, as Hercules is repreſented; and others of a more ſlim and elegant ſhape, as Achilles is deſcribed. The former, devoting themſelves to wreſtling and boxing, had no object but to increaſe their bodily ſtrength; the latter, educated to leſs violent exerciſes, ſuch as running, leaping, &c. confined themſelves to acquirement of agility.

"Their regimen is ſuited to the different exerciſes for which they are deſigned. Some of them abſtain from women and wine; others lead a very abſtemious life; but thoſe who make laborious exertions ſtand in need of a great quantity of ſubſtantial food, ſuch as roaſted beef and pork, to reſtore their ſtrength. If they require only two minæ a-day, with bread in proportion, they give a very favourable idea of their temperance. But ſeveral are mentioned who have made a terrible conſumption of proviſions. Theagenes of Thaſos, for inſtance, is ſaid to have eaten a whole ox in a day. The ſame exploit is attributed to Milo of Crotona, whoſe uſual quantity of food for a day was twenty minæ of meat, as many of bread, and three congii of wine. It is ſaid likewiſe, that Aſtydamas of Miletus, when at the table of Ario-

Palæstra || Palamedes.

barzanes the Persian satrap, devoured alone the supper prepared for nine guests. These stories, no doubt exaggerated, prove at least the idea generally entertained of the voracity of this class of wrestlers. When they are able to gratify it without danger, they acquire extraordinary strength: their stature becomes sometimes gigantic; and their adversaries, struck with terror, either decline entering the lists, or sink under the weight of their enormous bodies.

"They are so oppressed by excess of nutriment as to be obliged to pass part of their lives in a profound sleep, and soon become so extremely corpulent as to be no longer known to be the same persons: this is succeeded by disorders which render them as wretched as they have always been unserviceable to their country; for it cannot be denied that wrestling, boxing, and all those combats disputed with so much fury and obstinacy in the public solemnities, are no longer any thing but ostentatious exhibitions, since tactics have been brought to perfection. Egypt at no time adopted them, as they give only a temporary strength. Lacedæmon has corrected their inconveniences by the wisdom of her institutions. In the other states of Greece men have discovered, that, by subjecting their children to them, they incur the risk of injuring their shape and preventing their growth; and that, in a more advanced age, professed wrestlers never make good soldiers, because they are unable to support hunger, thirst, watching, the smallest wants, or the most trifling deviation from their usual habits." See PENTATHLUM and PANCRATIUM.

PALÆSTROPHYLAX, was the director of the palæstra, and the exercises performed there.

PALAMBOANG, or PALAMBANG, a town of Asia, in the East Indies, and in the island of Java, capital of a kingdom; seated at the east end of the island, on the straits of Bally, and separated from the island of Bally by a narrow channel. E. Long. 115. 10. S. Lat. 7. 10.

PALAMEDEA, a genus of birds belonging to the order of grallæ. See ORNITHOLOGY *Index*.

PALAMEDES, a Greek chief, son of Nauplius king of Eubœa, by Clemene. He was sent by the Grecian princes who were going to the Trojan war, in order to bring Ulysses to the camp, who, to avoid the expedition, pretended insanity; and the better to carry on the imposition, he often harnessed different animals to a plough, and sowed salt instead of barley. Palamedes soon discovered the cheat. He knew that regret to part with Penelope, whom Ulysses had lately married, was his only reason for pretending insanity; and to demonstrate this, Palamedes took Telemachus, of whom Penelope had lately been delivered, and put him before his father's plough. Ulysses turned the plough a different way, not to hurt his child. He was therefore obliged to attend the Greek princes to the war; but a mortal enmity took place between Ulysses and Palamedes. The king of Ithaca determined to take every opportunity to distress him; and when all his expectations were frustrated, he was mean enough to bribe one of his servants, and to make him dig a hole in his master's tent, and there conceal a large sum of money. After this Ulysses forged a letter in Phrygian characters, as from Priam to Palamedes. In the letter the Trojan king seemed to beg Palamedes to deliver into his hands the Grecian army, according to the conditions which had been previously agreed upon when he received the money. This forged letter was carried, by means of Ulysses, before the princes of the Grecian army. Palamedes was summoned, and made the most solemn protestations of innocence, but in vain. The money that was discovered in his tent served to corroborate the accusation; and he was therefore found guilty by the whole army, and stoned to death. Homer is silent about the unfortunate fate of Palamedes; and Pausanias mentions, that it had been reported by some that Ulysses and Diomedes had drowned him in the sea as he was fishing on the coast. Philostratus, who mentions the tragical story as above related, adds, that Achilles and Ajax buried his body with great pomp on the sea shore; and that they raised upon it a small chapel, where sacrifices were regularly offered by the inhabitants of Troas. Palamedes was a man of learning as well as a soldier; and, according to some, he completed the alphabet of Cadmus by the addition of the four letters θ, ξ, χ, φ, during the Trojan war. To him also is attributed the invention of dice and backgammon; and it is said that he was the first who regularly ranged an army in a line of battle, and who placed sentinels round the camp, and excited their vigilance and attention by giving them a watch-word.

Palamedes || Palatinate.

PALARIA, among the Romans, a kind of exercise performed at a stake by the soldiers. The stake being fixed in the ground, and six feet high above it, the young undisciplined soldiers advanced against it, armed with a hurdle and cudgel, instead of a sword and shield, and went through all the rules of attack and defence, as if actually engaged with an adversary. Sometimes they stood at a distance, and attacked with missive weapons; at the same time using all the requisite motions for defending themselves, and warding off what might be thrown against them.

PALATE, in *Anatomy*, the flesh that composes the roof, or the upper and inner part, of the mouth.

The palate has much the same structure with the gums; but it has also a great number of glands, discovered so early as the time of Fallopius: these are principally situated in the hinder part near the uvula, where it is pendulous, in the manner of a curtain, which part is called the *velum*, or *claustrum*, of the palate. The glands situated particularly in this part, secrete a mucous fluid, serving to lubricate the mouth and throat, and to facilitate deglutition: they have a great number of apertures there for the discharge of this humour into the mouth.

The great uses of this membrane are, to defend the bones of the palate from corrupting; and for preventing, by its claustrum or velum, the things to be swallowed from getting up into the nostrils.

PALATINATE, a province or signiory, possessed by a palatine.

PALATINATE of the Rhine, a province of Germany, divided into two parts by the Rhine, called the *Upper* and *Lower Palatinate*. The former lies in the circle of Bavaria, and belongs to the elector thereof; but the latter, in the circle we are now treating, belongs to the elector palatine. The latter part is bounded to the east by the county of Katzenellnbogen, the archbishopric of Mentz, the bishopric of Worms, and part of the territory of the Teutonic order in Franconia; to the west by Alsace, the duchy of Deuxponts, the county of Sponheim,

Palatinate. Sponheim, the duchy of Simmern, and certain diſtricts of the electorate of Mentz; to the ſouth by the duchy of Wurtemberg and the biſhopric of Spire; and to the north by a part of the archbiſhopric of Mentz and the county of Katzenellnbogen. It contains 41 towns, beſides ſeveral boroughs; and is about 100 miles in length, and 70 in breadth. The air is healthful, and the ſoil fruitful in corn, paſturage, wine, tobacco, and all ſorts of pulſe and fruits, particularly walnuts, cheſnuts, and almonds. This country alſo breeds abundance of cattle, and is well watered by the Neckar, the Nahe, and the Rhine. In the laſt of theſe, near Germerſheim and Selz, is found gold: the excluſive right of ſearching for which is farmed out by the elector. The ſtate of religion hath varied greatly here ſince the Reformation, Lutheraniſm and Calviniſm having been uppermoſt by turns, till the electorate devolved to the Popiſh branches of the family, when Popery, with all its ſuperſtition and mummery, was eſtabliſhed anew: ſo that the Proteſtant religion is now on a very precarious footing in the Palatinate, though moſt of the natives are ſtill of that perſuaſion: but the two ſects of Proteſtants, namely, the Lutherans and Calviniſts, have greatly contributed to their own ruin, by their mutual jealouſy and animoſity, being no leſs rancorous againſt one another than againſt their common adverſaries the Papiſts. The Lutherans reckon themſelves 50,000 ſtrong, and are poſſeſſed of about 85 churches; but not one half of their preachers and ſchoolmaſters have a competent maintenance. The number of Calviniſt clergy here is eſtimated at 500, and that of the Roman Catholics at 400. Beſides ſchools and Jeſuits colleges in this country, there is one univerſity, namely, that of Heidelberg; but there is very little trade in it except in wine. Authors are divided about the origin of the name *Palatines*, or *Pfalzgraves*, as the Germans call them; but it ſeems moſt likely to be derived from the *palatia*, or palaces, which the old Frankiſh and German kings and Roman emperors were poſſeſſed of in different parts of the country, and over which they appointed ſupreme ſtewards or judges, who are called *Palatines* or *Pfalzgraves*. The countries where theſe Palatines kept their courts, were, from them, called *Palatinates*; which name came at laſt to be appropriated, by way of eminence, to this country, as being the moſt conſiderable of them. The ancient electoral line failing in 1685, the electorate devolved to Philip William duke of Neuburg; and upon the death of his ſecond ſon Charles Philip, to the prince of Sultzbach. This elector has the title of arch-treaſurer of the empire, as well as the elector of Brunſwick Lunenburg, and is the fifth in rank among the ſecular electors. He is alſo one of the vicars of the empire alternately with the elector of Bavaria, and enjoys many other prerogatives. In his own dominions, he diſpoſes of all vacant benefices; but allows the eccleſiaſtical council, compoſed of two clergymen and two laymen, to preſent two candidates, of which he chooſes one. He is alſo maſter of all the tithes in his dominions; but he either grants them to the clergy, or ſalaries in lieu of them, out of the revenues of the church. His title is Pfalzgrave of the Rhine; arch-treaſure and elector of the holy Roman empire; duke of Bavaria, Juliers, Cleve, and Berg; prince of Mons; marquis of Bergen-op-Zoom; count of Veldens, Sponheim the Mark, and Ravenſberg: and lord of Ravenſtein. His quota to the army of the empire is 30 horſe and 138 foot, or 914 florins monthly. To the chamber of Wetzlar he contributes, each term, 404 rixdollars, 82 kruitzers. There is an order of knighthood in this country, viz. that of St Hubert; the badge of which is a quadrangular croſs pendant to a red ribband, with a ſtar on the breaſt. The whole of the elector's revenue, ariſing from the Palatinate, the duchies of Berg and Juliers, the ſeigniory of Ravenſtein, and the duchies of Neuburg and Sultzbach, hath been eſtimated at about 300,000l. per annum. The military eſtabliſhment conſiſts of ſeveral regiments of horſe and foot, beſides the horſe and Swiſs life-guards: in time of peace he is ſaid to maintain about 6000 men.—All the different courts and councils, uſual in other countries for the different departments of government, are alſo to be found here. Palatinate.

In general, the Lower Palatinate has ſuffered more by the preceding wars with France than all the provinces of Germany put together during the ſpace of 30 years; for the French have plundered the country, and demoliſhed ſome of its firſt towns more than once. It has undergone various changes during the late French revolution, for an account of which, ſee FRANCE. In the modern part of the Univerſal Hiſtory, we have the following account of the riſe of the Palatinate of the Rhine, under the hiſtory of Germany.

"Though Conrad the ſon of Everhard inherited from his father the duchy of Franconia, with the counties of Heſſe and Alſace, he could not ſucceed him in the dignity of Count Palatine, becauſe Otho had taken it from his father, and conferred it on Herman third ſon of Arnold duke of Bavaria: but as this honour was unattended with any ſolid advantage, the emperor began to annex to it the lands and caſtles ſituated on the Rhine, whence he acquired the title of Count Palatine of the Rhine: and, in proceſs of time, theſe counts made great acquiſitions by marriages, purchaſes, mortgages, and imperial donations, ſo as to form a very conſiderable province." The powers of counts palatine in the German empire have always been ample; we have this account of it in the ſame learned work.

"When the counts palatine of the Rhine began to execute their office, they neither poſſeſſed on that river lands, cities, nor caſtles; but having by degrees made great acquiſitions by marriages, purchaſes, agreements, imperial donations, or otherwiſe, they have at length formed a very conſiderable principality. We are told, that under the emperors of the houſe of Suabia, their authority and power increaſed greatly, though it was a gradual increaſe. Under the reign of the emperor Henry IV. the credit of the counts palatine was very conſiderable at the court; and by the German law, the count palatine of the Rhine enjoys not only during the abſence of the emperor, but likewiſe during a vacancy of the empire, the right of the ban beyond the Rhine, to within a mile of the city of Metz, and as far as the ocean, as well as in Flanders. However, this right of the ban has not been granted to him by the emperors. There is likewiſe an ancient ordonnance, in which the office of count palatine is mentioned; it imports, that the count palatine is always by right the repreſentative or lieutenant of the kingdom. Laſtly, How great the power of the counts palatine was, may be underſtood from this, that in the election of Rodolphus of Hapſburgh, and in that of Henry VII. the other electors promiſed

Palatinates promised to acknowledge as emperor him whom he should name. Although, however, the power of the counts palatine had as it were secured to them the vicariate of the empire, nevertheless the emperors still reserved to themselves the right of establishing vicars." See BAVARIA.

Palatine.

PALATINATES *of* POLAND. Previous to the revolution in this unfortunate country, it was divided into palatinates; whether those will be now changed cannot at present be ascertained, though it seems likely. A Polish palatine is thus described in the Universal History:

"A palatine may be regarded as the governor of a province, who levies and leads the troops of his own jurisdiction to join the army of the republic. His civil power is likewise considerable, as he presides at the assemblies of his palatinate, rates the prices of all commodities and merchandise in the province, regulates the weights and measures, and judges and defends the Jews within his jurisdiction. This part of his function is particularly specified, that a set of men the most useful and industrious in Poland may not be oppressed; the king being likewise obliged, by his oath, to afford them the protection of the laws and his sovereignty. Under him is appointed a substitute or vice-palatine, who takes an oath to his superior, and must be possessed of a land estate to a certain value."

PALATINE, or COUNT PALATINE, a title anciently given to all persons who had any office or employment in the prince's palace: but afterwards conferred on those delegated by princes to hold courts of justice in the provinces; and on such among the lords as had a palace, that is, a court of justice, in their own houses.

Counties PALATINE in England.—Chester, Durham, and Lancaster, are called *counties palatine*. The two former are such by prescription, or immemorial custom; or, at least as old as the Norman conquest: the latter was created by King Edward III. in favour of Henry Plantagenet, first earl and then duke of Lancaster; whose heiress being married to John of Gaunt the king's son, the franchise was greatly enlarged and confirmed in parliament, to honour John of Gaunt himself, whom, on the death of his father-in-law, the king had also created duke of Lancaster. Counties palatine are also called *à palatio;* because the owners thereof, the earl of Chester, the bishop of Durham, and the duke of Lancaster, had in those counties *jura regalia*, as fully as the king hath in his palace; *regalem potestatem in omnibus*, as Bracton expresses it. They might pardon treasons, murders, and felonies; they appointed all judges and justices of the peace; all writs and indictments ran in their names, as in other counties in the king's; and all offences were said to be done against their peace, and not, as in other places, *contra pacem domini regis*. And indeed by the ancient law, in all peculiar jurisdictions, offences were said to be done against his peace in whose court they were tried; in a court-leet, *contra pacem domini;* in the court of a corporation, *contra pacem ballivorum;* in the sheriff's court or tourn, *contra pacem vicecomitis*. These palatine privileges (so similar to the regal independent jurisdictions usurped by the great barons on the continent during the weak and infant state of the first feudal kingdoms in Europe) were in all probability originally granted to the counties of Chester and Durham, because they bordered upon enemies countries, Wales and Scotland: in order that the owners, being encouraged by so large an authority, might be the more watchful in its defence; and that the inhabitants, having justice administered at home, might not be obliged to go out of the county, and leave it open to the enemy's incursions. And upon this account also there were formerly two other counties palatine, Pembrokeshire and Hexamshire, the latter now united with Northumberland: but these were abolished by parliament, the former in 27 Henry VIII. the latter in 14 Eliz. And in 27 Hen. VIII. likewise, the powers before mentioned of owners of counties palatine were abridged; the reason for their continuance in a manner ceasing; though still all writs are witnessed in their names, and all forfeitures for treason by the common law accrue to them.

Palatine.

Of these three, the county of Durham is now the only one remaining in the hands of a subject. For the earldom of Chester, as Camden testifies, was united to the crown by Henry III. and has ever since given title to the king's eldest son. And the county palatine or duchy of Lancaster was the property of Henry of Bolingbroke, the son of John of Gaunt, at the time when he wrested the crown from King Richard II. and assumed the title of Henry IV. But he was too prudent to suffer this to be united to the crown; lest, if he lost one, he should lose the other also. For, as Plowden and Sir Edward Coke observe, "he knew he had the duchy of Lancaster by sure and indefeasible title, but that his title to the crown was not so assured: for that after the decease of Richard II. the right of the crown was in the heir of Lionel duke of Clarence, second son of Edward III.; John of Gaunt, father to this Henry IV. being but the fourth son." And therefore he procured an act of parliament, in the first year of his reign, ordaining that the duchy of Lancaster, and all other his hereditary estates, with all their royalties and franchises, should remain to him and his heirs for ever; and should remain, descend, be administered, and governed, in like manner as if he never had attained the regal dignity: and thus they descended to his son and grandson Henry V. and Henry VI.; many new territories and privileges being annexed to the duchy by the former. Henry VI. being attainted in 1 Edw. IV. this duchy was declared in parliament to have become forfeited to the crown, and at the same time an act was made to incorporate the duchy of Lancaster, to continue the county palatine (which might otherwise have determined by the attainder), and to make the same parcel of the duchy: and, farther to vest the whole in King Edward IV. and his heirs, kings of England, for ever; but under a separate guiding and governance from the other inheritances of the crown. And in 1 Hen. VII. another act was made, to resume such part of the duchy lands as had been dismembered from it in the reign of Edw. IV. and to vest the inheritance of the whole in the king and his heirs for ever, as amply and largely, and in like manner, form, and condition, separate from the crown of England and possession of the same, as the three Henries and Edward IV. or any of them, had and held the same.

The isle of Ely is not a county palatine, though sometimes erroneously called so, but only a royal franchise: the bishop having, by grant of King Henry I. *jura regalia* within the isle of Ely; whereby he exercises a jurisdiction over all causes, as well criminal as civil.

Palatine || Palencia.

PALATINE Games, in Roman antiquity, games inſtituted in honour of Auguſtus by his wife Livia, after he had been enrolled among the gods. They were celebrated in the palace, from whence the name, and were confirmed by the ſucceeding emperors.

Some authors ſay that theſe games were inſtituted in honour of Julius Cæſar, and others again confound them with the Ludi Auguſtales; but neither of theſe opinions ſeem to be well ſupported. See AUGUSTALES.

PALATINUS MONS, or *Palatium*, the firſt mountain of Rome, occupied by Romulus, and where he fixed his reſidence and kept his court, as did Tullus Hoſtilius, Auguſtus, and all the ſucceeding emperors; and hence it is that the reſidence of princes is called *palatium*. The reaſon of the name is variouſly aſſigned: ſome ſay it is derived from the goddeſs Pales, or from the Palatini, who originally inhabited the place, or from *balare* or *palare*, the bleatings of ſheep, which were frequent there; or perhaps from the word *palantes*, wandering, becauſe Evander, when he came to ſettle in Italy, gathered all the inhabitants, and made them all one ſociety. To the eaſt it has Mount Cœlius, to the ſouth the Aventine, to the weſt the Capitoline, and to the north the Forum.—*Palatinus*, the ſurname of Apollo from this place; where Auguſtus built a temple to that god, adorned with porticoes and a library, valuable for the various collections of Greek and Latin manuſcripts which it contained.

PALATIUM, in *Ancient Geography*, a place in the territory of Reate, diſtant from it 25 ſtadia. Dionyſius Halicarnaſſeus reckons it one of the firſt towns of the Aborigines; and from it Varro accounts for the name of the *Mons Palatinus;* namely, that a colony from Palatium ſettled there.

PALATIUM (Pliny), *Pallantium* (Pauſanias), *Palanteum* (Livy); *Pallanteum* (Solinus). This laſt is the true writing; the great grandfather of Evander, from whom it took its name, being called *Pallas*, not *Palas;* A town of Arcadia, which concurred to form Megalopolis (Pauſanias). From it the *Palatium*, or *Mons Palatinus*, takes alſo its name, according to Virgil and Pliny.

PALATIUM Diocleſiani; the villa of Diocleſian, near Salonæ, where he died, (Euſebius). Afterwards called *Spalatum;* which roſe to a conſiderable city from the ruins of Salonæ; ſituated in Dalmatia on the Adriatic. Now *Spallato*, or *Spalatro*.

PALATIUM Luculli (Plutarch), or *Villa Luculli;* a place between Miſenum and Baiæ in Campania, of wonderful ſtructure. Now in ruins, and called *Piſcina Mirabile*.

PALATO-SALPINGÆUS, } See ANATOMY, *Table*
PALATO-Staphylinus, } *of the Muſcles*.

PALE, a little pointed ſtake or piece of wood uſed in making encloſures, ſeparations, &c. The *pale* was an inſtrument of puniſhment and execution among the ancient Romans, and ſtill continues ſo among the Turks. Hence empaling, the paſſing a ſharp pale up the fundament through the body.

PALE, in *Heraldry*. See HERALDRY.

PALENCIA, a town of Spain, in the kingdom of Leon, with a rich archbiſhop's ſee. It had an univerſity, but it was removed to Salamanca. It is ſeated in a fertile ſoil, on the river Carion, on the frontiers of Caſtile, in W. Long. 3. 7. N. Lat. 42. 10.

Palermo.

PALERMO, a city of Sicily, in the Val-di-Mazara, with an archbiſhop's ſee and a large harbour. "This city (ſays Mr Hill *), which is the capital of Sicily, is of great antiquity; and if a conjecture may be formed from its ancient name *Panormus*, which ſignifies an univerſal harbour, it was formerly in a very flouriſhing condition. By whom it was founded is uncertain, nor have we any authentic accounts of its inhabitants till it became a colony of the Phœnicians, after which it paſſed into the hands of the various nations that became maſters of this iſland. The preſent city principally conſiſts of two wide, uniform, and well built ſtreets, each about a mile in length, croſſing each other at right angles in the centre, where there is a ſmall octagon ſpace, ornamented with four ſtatues." Moſt of the cities of Sicily have ſurnames: Palermo is denominated *the happy*. It has gained this epithet, no doubt, on account of the advantages of its ſituation. It has two harbours: in the one, which is very large, and in which there is a mole 1300 paces in length, ſhips lie at anchor; in the other their cargoes are laden and unladen. Both the harbours open to the weſt: there is alſo a ſuperb quay which extends a mile from weſt to eaſt, in a rectilinear direction, and is called *La Marine*. The proſpect is, on the one ſide, loſt in the wide expanſe of the ocean, and on the other confined by the walls of the city; the walls appear adorned with pillaſters, and crowned with a row of baluſtrades through which the eye diſcovers a long range of palaces. Theſe objects altogether form a delightful ſpectacle. Indeed nothing can be more pictureſque than the bay of Palermo. It forms a large amphitheatre, with the capital of Sicily in the centre; ſurrounded for ſome miles by a moſt delightful country, and encloſed by romantic rocks and mountains. The town was formerly ſurrounded by a ſtrong wall; but the fortifications are now entirely neglected, except towards the ſea, where there are ſtill a few weak works. The quay is the principal public walk here. Palermo is embelliſhed all round with avenues of trees, and has four principal entrances, facing the four cardinal points, which are at the extremities of the two ſpacious ſtreets which croſs each other. The moſt frequented of theſe two ſtreets is called *Caſſero*. It begins where the quay ends, with the north gate called *Porta Felice*, the happy gate; and terminates on the ſouth, at the new gate, which opens on the road to Montreale. Near the laſt of theſe gates, this city, which ſo well merits the attention of a lover of the arts, exhibits a large ſquare, round which ſtand ſome extenſive monaſteries, the palace of the archbiſhop, and the palace of the viceroy. Directly oppoſite to the palace of the viceroy ſtands, on a pedeſtal richly ornamented with a variety of figures, a ſtatue of Philip IV. The ſtatue, the pedeſtal, and the ornaments, are all of marble.

* *Travels through Sicily and Calabria.*

Palermo is quite filled with public monuments, churches, monaſteries, palaces, fountains, ſtatues, and columns. Theſe are not all eminently beautiful; for they have not been all erected under the reign of *good taſte;* but every one of them ſhows that the nation is fond of the arts, and poſſeſſes a genius for decoration. Spring waters are very copious in this city. Not a quarter in Palermo but is liberally ſupplied with fountains,

Palermo. tains, moſt of which are marble, all of them adorned with pieces of ſculpture, and all afford large quantities of water.

The ſituation of this city is truly happy; the ſea, the hills, the loſty mountains, preſent on all ſides beautiful and ſtriking proſpects, which render it one of the moſt favourable ſituations for the genius of the artiſt, whoſe object is to copy the beauty and ſublimity of nature. Freed from the fetters of the Inquiſition, the abolition of which was procured by the marquis of Caraccioli, and from the influence of ſome other unfavourable inſtitutions, which are rapidly declining, Palermo muſt become one of the fineſt cities in the world; and the iſland of which it is the capital, being all cultivated like a garden, one of the moſt enchanting ſpots on the face of the earth. Nature has denied none of her beſt ſpots to Sicily. It was the benignity of nature, which, in the happy ages of antiquity, when the political circumſtances of the Sicilians were not ſuch as to repreſs their genius, prompted and enabled them to erect ſo many illuſtrious monuments. "Adjoining to the town, and near the ſea, is a public garden or promenade, planted with orange and lemon trees, formed into arcades, and *February. now loaded with fruit *; the ſtems of the trees ſtand in furrows, and are continually watered by a ſmall ſtream. In the middle is a fountain, on which ſtands a coloſſus of white marble, ſurrounded by four groteſque temples, in two of which are canary birds. Among the oranges is a kind called *ſanguinei* or bloody, which are ſtained in the middle with red, and have uſually the fineſt flavour. Some of the lemons are ſweet, but very flat, taſting like ſugar and water. The citrons grow to an immenſe ſize; the rind, which occupies at leaſt three-fourths of the bulk of the fruit, is eaten with ſugar; the juice is ſharper than the ſoureſt lemon. Indian figs in very great abundance grow wild in the fields and hedges, to the height of twelve or fourteen feet; of theſe there are three kinds, one with large ſpines, another with ſmaller, and the third almoſt ſmooth. Their fruit is cooling and delicious, 10,000l. worth of which is ſold annually to the poor people in the neighbourhood of this city. Another plant, very common in this country, is the aloe, which uſually bloſſoms every fifth or ſixth year. Of theſe there are five or ſix ſpecies, which grow moſtly in the hedges, and together with the Indian figs, form a moſt impenetrable fence.

"The palace, which is an indifferent old building, is ſituated in a ſquare, near the ſouth gate of the city, and commands a delightful proſpect of the adjacent country. At the top is an obſervatory, inhabited by an ingenious old prieſt who has been in England, and brought from thence ſeveral aſtronomical inſtruments conſtructed by Ramſden." Neither the ſtructure, ſituation, nor architectural ornaments of the palace are ſuch as to merit any extraordinary praiſe. It is, like many others, an aſſemblage of buildings erected in various ages, as need of accommodation or fancy ſuggeſted; and, of conſequence, it muſt unavoidably be defective in architectural order and beauty. The chapel is the only part of it that merits any attention. It was founded by the Counts Roger, the Norman conquerors of Sicily. Within, it is decorated with beautiful pieces of marble and porphyry, and of moſaic work in gold and various colours. It is in the ſame taſte with the cathedral of Montreale. It is built on the ſame plan with common churches, only on a ſmaller ſcale. The Palermo. nave is encircled with pillars; on the right and the left are two narrower openings, called *lateral* or low paſſages: the choir and ſanctuary are at the end of the nave. Among all the pillars which encloſe the nave, it would be hard to find two exactly of the ſame form and workmanſhip. Oppoſite to a channeled column ſtands another on which the graving tool has made no ſuch impreſſions; ſeveral have neither aſtragal, nor baſe, nor ſcale: they are formed of various kinds of marble, and are of different orders and unequal in height. The walls, the arcades, and the arches, are covered with moſaic work, in gold and colours, repreſenting angels, and male and female ſaints.

Over the entrance into the choir, and fronting the nave, there is an Eternal Father of a huge ſize; the deſign of which has, in all probability, been to impreſs the beholder with a ſufficiently awful idea of the greatneſs of God. Such repreſentations of the deity, however improper, not to ſay impious, occur pretty commonly in the churches of Sicily. The cathedrals of both Montreale and Palermo diſplay the Divine Majeſty with equal dignity. Over the walls of the chapel there are many pieces of granite, porphyry, and ſerpentine, cut into a round, or a ſquare, or ſome other form, and ſet like pancs of glaſs. Their edges are encircled with various draughts in gold and colours; decorations unqueſtionably expenſive, as they are indeed very finely executed in their kind. But it is amazing that ſuch irregularity of deſign was admitted in a building of ſuch magnificence and raiſed at ſuch an enormous expence. The pavement of the chapel has been originally laid, and ſtill conſiſts in part of large blocks of tin, porphyry, and ſerpentine. Moſt of theſe are round; ornamented with compartments of draughts, and covered over, as well as the walls, with incruſtations of coloured moſaic work. The ſeat deſigned for the viceroy is of the ſame kind, and highly ornamented. The candleſtick intended to receive the wax lights at the feſtival of Eaſter is of white marble. All the riches of ſculpture are laviſhed on it with ſuch profuſion as renders it a prodigy of labour; but in a fantaſtic unnatural taſte.

In a long gallery in the palace of the viceroy, ſtand two figures of rams in bronze, concerning which we find the following tradition.—Archimedes is ſaid to have long ago erected in one of the public ſquares of Syracuſe four columns with a brazen ram upon the top of each. He is ſaid to have placed them there in ſuch a poſture, as that ſome one of them always indicated which of the four principal winds was blowing; and it is added, that they were fabricated with ſuch art, that the wind cauſed them to utter ſounds exactly ſimilar to the bleating of ſheep; and whenever any one of the four bleated, he thereby gave notice that the wind was blowing from that quarter towards which he ſtood. It is certain (as travellers inform us) that the two brazen rams in this gallery are perforated with ſmall holes in their flanks, cloſe to their thighs, and in other places over their bodies; and that by blowing through thoſe holes a ſound is produced pretty much like the bleating of ſheep. The wind appears to paſs through the holes, and to paſs out at the mouth: there might, however, be other holes in the pedeſtal on which the ram ſtood, or in other parts of the body, which might contribute to produce

Palermo. produce the bleating; for travellers agree in saying, that those which they could observe do not appear to be sufficient to produce the effect. The prince of Torre Muzza, one of the most enlightened men in Sicily, informed M. Houel, that these two rams were dug up from among the ruins of Syracuse in the fourteenth century: as they were buried under ground, they had probably lain there for many centuries. They were bought by the Marquis Geraci, of the family of Ventimiglia, and lay long in his castle. About the end of the 15th century they were brought to Palermo, and placed in the palace of the viceroy. It is not known what is become of the other two. They are probably buried in some ancient ruins, and may be one day or other discovered in digging for the foundation of some new building. The proportions of these two rams are larger than nature. They are pieces of very fine workmanship: both the heads and the horns are formed with taste, delicacy, and truth; the wool is not so well executed; the forms all together are not absolutely the finest that might be selected from among the whole species.

The cathedral of Palermo is dedicated to St Rosalia. The Sicilians, though so exceedingly devout, have however neglected to repair it; and it is at present in a most miserable state, as the interior parts appear to be falling into ruins. Proposals have been made for rebuilding it, and various plans have been shown.

The present church appears to have been built by the Counts Roger. The external parts are in a Gothic taste, and very heavy: within, it has been at different periods repaired and embellished. The pillars of the nave are adorned with pilasters of the Corinthian order: these are joined by arches through which you pass to the sides of the building. In some places it is overloaded with ornaments, in others but very poorly ornamented: viewed all together, it is so destitute of order or proportion as to be absolutely ridiculous.

In a chapel on one side of the cathedral are four Gothic tombs of the same period. They have been originally sarcophagi; and having escaped the fate of most of the other works of antiquity, have been spoiled by attempts to repair or improve them, and have been set up here to preserve the remains of some of the kings of Sicily. The only thing about them that can deserve attention is the beauty of the stone; they are of a fine red porphyry.

In the same chapel there is a fine large tabernacle; the whole of which, when viewed without distinction of the parts, resembles the dome and the front gate of the Val-de-grace at Paris. It is of rich lapis lazuli, of the very finest colour. The whole of it is plated, and the pillars are said to be solid. All its ornaments are of gilt brass; and on the whole it is extremely beautiful.

Around the church are several statues of saints by Guagini, the celebrated sculptor. On the way from the cathedral down the Cassero there is, on the right hand, a small square, at the entrance of which stands a pedestrian statue of Charles V. in bronze. Near the place where the two great streets cross stands the senate house, in a small court, before which there is a fine marble fountain; there are besides about this edifice many curious fragments of antiquity. It would extend this article beyond all proportion if we were to mention all the curiosities which are to be found in Palermo. We shall now endeavour to give our readers an idea of the internal government of the place, which we shall do in the words of Mr Hill. Palermo.

"The magistrates appointed to preserve the order of society in this city are, first, the supreme judge, to whom belongs the administration of justice in criminal cases: he is the head of the nobility, and immediately follows the viceroy in all the solemn functions. Secondly, The prætor, who regulates the affairs of the city. He is the perpetual deputy of the kingdom; chief in parliament of the order to whom appertains the right of regulating the king's demesne, and possessed of the prerogative of captain-general during the absence of the viceroy. Thirdly, The prætorian court, which consists of three judges, citizens of Palermo, who are chosen annually by the king. They assist the supreme judge in the decision of criminal affairs, and the prætor in the deliberations upon the finances; these two officers, however, have neither vote nor signature, except the prætor, in the business respecting the public bank and first fruits. Fourthly, The senate of Palermo, composed of the prætor and six practitioners of the law, named by the king, who wear the toga after the manner of the ancient Roman senators, and principally inspect the police which regards the grain and provisions. There are besides seven great officers of state, to each of which is assigned a peculiar employment. First, *Il Maestro Portelano*, to whom is committed the care of the public granaries, and who manages the sale of the corn both at home and abroad. The imposition of a tax upon this commodity has nearly proved the ruin of agriculture, especially as the exportation of it is prohibited to all those who are not able to pay an exorbitant price for that privilege. The quantity of corn annually produced in the island does not at present amount to more than a tenth part of what was collected in former years. Secondly, The auditor general, who passes judgement without appeal upon all offences committed within the precincts of the palace. Thirdly, The high admiral, whose jurisdiction extends over the marine. Fourthly, The chancellor who overlooks all the notaries of the kingdom, prepares all official patents, reads the propositions when the parliament assembles, and at the time of a coronation tenders the oath of fidelity to the people, and also proclaims that of the monarch, who thereby binds himself to maintain and defend the privileges of the city of Palermo. The same ceremony takes place upon the installation of a viceroy. Fifthly, The prothonotary of the queen's chamber, who has the inspection of the demesnes of six cities, viz. Syracuse, Lentini, Carlentini, St Filippo, Mineo, and Virini, which were formerly appropriated to the queens of Sicily. Sixthly, The chief secretary, who presides over the officers appointed to receive the taxes and duties in the places of their respective jurisdictions. And, seventhly, The lieutenant of the royal exchequer, who has the administration of all effects that have been sequestered or confiscated.

"Palermo is the principal residence of the greater part of the Sicilian nobility; and as it is not the custom for any gentleman to walk in the streets, at least 1000 carriages are said to be kept in the town. They are for the most part in the English taste, very elegant,

Palermo.

ſhown to the greateſt advantage, with beautiful horſes richly capariſoned, and as many footmen in ſplendid liveries as can be crowded together behind. Every evening all the people of rank drive about in this manner on the grand public terrace by the ſea ſide. There are alſo very convenient hackney coaches, covered and open, waiting all day in their reſpective ſtations."

It is very remarkable, that the dead in Palermo are never buried. Captain Sutherland gives the following account of this circumſtance in his Tour to Conſtantinople. The dead bodies are carried to the Capuchin convent, which is one of the largeſt in Italy; "where, after the funeral ſervice is performed, they are dried in a ſtove heated by a compoſition of lime, which makes the ſkin adhere to the bones. They are then placed erect in niches, and faſtened to the wall by the back or neck. A piece of coarſe drab is thrown over the ſhoulders and round the waſte; and their hands are tied together, holding a piece of paper with their epitaph, which is ſimply their names, age, and when they died. We of courſe (ſays Captain Sutherland) viſited this famous repoſitory; and it is natural to ſuppoſe that ſo many corpſes would impreſs one with reverence and awe. It was nearly duſk when we arrived at the convent. We paſſed the chapel, where one of the order had juſt finiſhed ſaying veſpers, by the gloomy glimmering of a dying lamp. We were then conducted through a garden, where the yew, the cypreſs, and the barren orange, obſcured the remaining light; and where melancholy ſilence is only diſturbed by the hollow murmuring of a feeble water fall. All theſe circumſtances tuned our minds for the diſmal ſcene which we were going to behold; but we had ſtill to deſcend a flight of ſteps impervious to the ſun; and, theſe at laſt, conveyed us to the dreary manſion of the dead. But (will you believe me?) notwithſtanding the chilling ſcene through which we had paſſed, notwithſtanding our being in the midſt of more than a thouſand lifeleſs bodies, neither our reſpect for the dead, nor for the holy fathers who conducted us, could prevent our ſmiling. The phyſiognomies of the deceaſed are ſo ridiculouſly mutilated, and their muſcles ſo contracted and diſtorted in the drying, that no French mimic could equal their grimaces. Moſt of the corpſes have loſt the lower part of the noſe; their necks are generally a little twiſted; their mouths drawn awry in one direction, their noſes in another; their eyes ſunk and pointed different ways; one ear perhaps turned up, the other drawn down. The friars ſoon obſerved the mirth which theſe unexpected viſages occaſioned; and one of them, as a kind of *memento*, pointed out to me a captain of cavalry, who had juſt been cut off in the pride of his youth: but three months ago, he was the minion of a king—the favourite of a princeſs—Alas! how changed! Even on earth there is no diſtinction between him and the meaneſt beggar. This idea in a moment reſtored my reflection; and I felt with full force the folly of human vanity. I turned to the holy father, who gave me this leſſon. His eyes were fixed on what was once a captain of horſe—I ſaw in them, 'Read this, titled pomp, and ſhrink to thy original nothingneſs. Hie thee to my lady's chamber, tell her, though ſhe paint an inch thick, to this muſt ſhe come at laſt—make her laugh at that.' The relations of the deceaſed are bound to ſend two wax tapers every year for the uſe of the convent; in default of which, the corpſe is taken down and thrown into the charnel houſe. Were it not for the number of vacancies occaſioned by the nonpayment of this ſtipend, the Capuchins would be unable to find niches for the number of men who muſt die every year in ſo populous a city as this. Women are dried as well as the men, but are not expoſed. Nobles are ſhut up in cheſts."

Pales, Paleſtine.

The number of the inhabitants is above 200,000; and the harbour though very large, is not ſo commodious as might be expected, and the veſſels that ride therein are not always very ſafe. There is a magnificent caſtle built near the ſea ſide, wherein the viceroy reſides ſix months in the year; and his preſence draws a great number of nobility to this place. This city has ſuffered greatly by earthquakes, particularly in 1693; and it was greatly damaged by a fire in 1730, when a magazine of powder was blown up, containing 400 tons. It ſtands in a pleaſant fruitful country, on the north-eaſt coaſt of the iſland, and at the bottom of the gulf of the ſame name. E. Long. 13. 23. N. Lat. 38. 15.

PALES, in Pagan worſhip, the goddeſs of the ſhepherds, to whom they offered milk and honey, in order that ſhe might deliver them and their flocks from wild beaſts and infectious diſeaſes. This goddeſs is repreſented as an old woman. She was worſhipped with great ſolemnity at Rome; and her feſtivals, called *Palilia*, were celebrated on the 21ſt of April, the very day that Romulus began to lay the foundation of the city of Rome; the ceremonies of which conſiſted in burning heaps of ſtraw, and leaping over them. No ſacrifices were offered, but purifications were made with the ſmoke of horſes blood, and with the aſhes of a calf that had been taken from the belly of its mother after it had been ſacrificed, and with the aſhes of beans. The purification of the flocks was alſo made with the ſmoke of ſulphur, of the olive, the pine, the laurel, and the roſemary. Offerings of mild cheeſe, boiled wine, and cakes of millet, were afterwards made to the goddeſs. Some call this feſtival *Parilia*, *quaſi à pariendo*, becauſe the ſacrifices were offered to the divinity for the fecundity of the flocks.

PALESTINE, in its preſent ſtate, is a part of Aſiatic Turkey, ſituated between 31° 30′ and 33° 20′ north latitude, and between 34° 50′ and 37° 15′ eaſt longitude. It is bounded by Mount Libanus, which divides it from Syria, on the north; by Mount Hermon, which ſeparates it from Arabia Deſerta on the eaſt; by the mountains of Seir and the deſerts of Arabia Petræa, on the ſouth; and by the Mediterranean ſea on the weſt.

This once fertile and happy ſpot was firſt called the land of *Canaan*, or *Chanaan*, from Noah's grandſon. In Scripture, however, it is frequently diſtinguiſhed by other names; ſuch as the *Land of Promiſe*, the *Land of God*, the *Land of Iſrael*, &c. It received the name of *Paleſtine* from the *Paleſtines* or *Philiſtines*, who poſſeſſed a great part of it; and it had the name of *Judea*, or *Judea Paleſtina* from *Judah*, the moſt conſiderable of the twelve ſons of Jacob. The Chriſtians have denominated it the *Holy Land*; partly on account of the many ſingular bleſſings it received from the Divine Providence, and partly on account of its metropolis being made

Paleſtine. made the centre of God's worſhip and his peculiar habitation; but much more for its being the place of our Saviour's birth, the ſcene of his preaching and manifold miracles; eſpecially the place in which he accompliſhed the great work of our redemption. As to the name of *Judea*, it did not begin to receive that till after the return of the Jews from the Babyloniſh captivity, though it had been ſtyled long before the *Kingdom of Judah*, in oppoſition to that of *Iſrael*, which revolted from it under Jeroboam, in the reign of Rehoboam the ſon of Solomon. But after the return, the tribe of Judah, the only one that made any figure, ſettling at Jeruſalem, and in the countries adjacent, quickly gave its name to the whole territory. By profane authors it was called by many different names; ſuch as Syria, Paleſtina Syria, Cœloſyria, Iduma, Idumæa, and Phænicia or Phœnice; but theſe are ſuppoſed only to have been given out of contempt to the Jewiſh nation, whom they looked upon as unworthy of any other name than what diſtinguiſhed the moſt obſcure parts of the neighbouring provinces.

That part of the country which was properly called the *Land of Promiſe*, was encloſed on the weſt by the Mediterranean; on the eaſt by the lake Aſphaltites, the Jordan, the ſea of Tiberias or of Galilee, and the Samachonite lake; to the north it had the mountains of Libanus, or rather of Antilibanus, or the province of Phœnicia; and to the ſouth, that of Edom or Idumæa, from which it was likewiſe parted by another ridge of high mountains. The boundaries of the other part, which belonged to the two tribes and a half beyond the river Jordan, are not ſo eaſily defined, as well as thoſe of the conqueſts made by the more proſperous kings of the Jews. All that can be ſaid with any probability is, that the river Arnon was the firſt northern boundary on that ſide; and with reſpect to thoſe on this ſide the Jordan, there is a conſiderable diſagreement between the Hebrew and Samaritan verſions of the Pentateuch.

The extent of this country is likewiſe variouſly ſettled by geographers; ſome giving it no more than 170 or 180 miles from north to ſouth, and 140 in breadth where broadeſt, though not much above half that breadth where narroweſt. But from the lateſt and moſt accurate maps, it appears to extend near 200 miles in length, and about 80 in breadth about the middle, and about 10 or 15, more or leſs, where it widens or contracts.

The climate is certainly very happy, its ſituation being neither too far ſouth nor too far north. The longeſt day is not above 14 hours 15 minutes: But the limits of Paleſtine appear ſo ſmall, conſidering that the country is likewiſe interſected by high ridges of mountains, woods, deſerts, &c. that many learned men have been induced to queſtion what we read of its fertility and populouſneſs in former times. It muſt be owned, indeed, that when we compare its ancient and flouriſhing ſtate, when it was cultivated with the utmoſt diligence by perſons well ſkilled in every branch of agriculture, with what it has been ſince the total extirpation of the Jews out of it, and more eſpecially ſince it fell into the hands of the Turks, the contraſt is amazingly great: but when we conſider the many evident cauſes which have contributed to effect this change, and even yet conſider the nature of the country itſelf, we find not the leaſt reaſon to doubt the truth of what the ſacred hiſtorians have related. Moſes deſcribes the richneſs of it in the ſtrongeſt terms, even before the Iſraelites got poſſeſſion of it. It even exceeded the land of Egypt, ſo much celebrated by ancient hiſtorians; eſpecially in the vaſt numbers of cattle which it produced; in the quantity and excellence of its wine, oil, and fruits. With reſpect to the oil and fruits, it is plain, that the olives and oil of Canaan exceeded in goodneſs thoſe of Egypt, ſince the tribes ſent them thither from thence; and as for vines, Herodotus tells us, that the Egyptians had none at all, but ſupplied the want of them by a liquor brewed from barley. The preſents which Jacob ſent to his ſon Joſeph, of honey, ſpices, myrrh, almonds, and other fruits of Paleſtine, ſhow that they muſt have been much better in the land of Judea than in Egypt. The wines of Gaza, Aſcalon, and Sarepta, were famous among the moſt remote nations; though it is allowed, that the wine which was made at and in the neighbourhood of Bethlehem, in great quantities, was equal at leaſt, not ſuperior, to any of the reſt: and that of Libanus, mentioned by the prophet Hoſea, was no leſs celebrated for its excellent flavour. Paleſtine.

Several circumſtances contributed to this wonderful fecundity: ſuch as, the excellent temperature of the air, which was never ſubject to exceſſive heats or colds; the regularity of its ſeaſons, eſpecially the former and latter rain; and the natural fatneſs and fertility of its ſoil, which required neither dunging nor manuring, and could be ploughed with a ſingle yoke of oxen and a ſmall kind of plough; for the ſoil was, and is ſtill, ſo ſhallow, that to have gone deep into it, would rather have endangered than improved the crop. With reſpect to the excellency of its corn, we are told, that the bread of Jeruſalem was preferred above all other; and the tribe of Aſher produced the beſt of both, and in greater quantity than any other tribe; and ſuch plenty was there of it, that, beſides what ſufficed the inhabitants, who made it their chief ſuſtenance, Solomon, we read, could afford to ſend 20,000 cors, or meaſures, of it, and as many of oil, yearly, to Hiram king of Tyre; beſides what they exported into other countries. And we find, even ſo late as King Herod, ſurnamed Agrippa, the countries of Tyre and Sion received moſt of their ſuſtenance from his tetrarchy.

As to their fruits, the grapes were delicious, finely flavoured, and very large. The palm tree and its dates were in no leſs requeſt; and the plain of Jericho, among other places, was famed for the great plenty and excellence of that fruit; inſomuch, that the metropolis of that territory was emphatically ſtyled *the city of palm trees*. But what both this plain, and other parts of Paleſtine, were moſt celebrated for, was the balſam ſhrub, whoſe balm was eſteemed ſo precious a drug among the Greeks, Romans, Egyptians, and other nations, and is ſtill to this day under the name of *balm of Gilead*. They had likewiſe the greateſt variety of other fruit trees in the higheſt perfection; and which might be, in ſome ſenſe, ſtyled *perpetual*, becauſe they were not only covered with a conſtant verdure, but becauſe the new buds always appeared on the ſame boughs before the old fruit was ripe; and of thoſe buds, which were in too great quantities to be allowed to come to maturity, they gathered enough to make very delightful pickles and

Palestine. sweetmeats, especially of their citrons, oranges, and apples of paradise, which last commonly hung by hundreds in a cluster, and as big as hens eggs, and of an excellent taste and flavour. These vines yield grapes twice, and sometimes three times a year, great quantities of which were dried up, and preserved for use, as well as their figs, plums, and other fruits. They had plenty of honey; the very trees distilled it; and the rocks yielded it in great quantities: but whether that of the latter kind was there deposited by the industrious bees, or produced some other way, is much disputed by travellers and naturalists. They likewise cultivated sugar canes in great abundance; and the cotton, hemp, and flax, were mostly of their own growth and manufacture, except some of a finer sort, that were brought to them from Egypt, and worn by those of the higher rank. Their vicinity to Libanus made the cedars, cypresses, and other stately fragrant trees, very common in most parts of the land, but more especially in Jerusalem. Cattle, both large and small, they fed in vast quantities; and the hilly countries not only afforded them variety and plenty of pasture, but also of water, which descended thence into the valleys and low lands, and fertilized them to the degree we have seen; besides several other rivers and brooks, some of the most remarkable of which we shall speak of in their proper places. But the most fertile pasture grounds were those on each side of the river Jordan; besides those of Sharon, or Saron, the plains of Lydda, Jamnia, and some others then justly famed for their fecundity. As for fish, the river abovementioned, the lake of Tiberias, and the Mediterranean sea, afforded, as they do to this day, great plenty and variety. Vast quantities were brought to Jerusalem, on which the inhabitants mostly subsisted; and hence one of the gates of that metropolis was, according to St Jerome, called the *fish gate*. The lake Asphaltites yielded salt in abundance, wherewith to season and preserve their fish, which Galen affirms to have been preferable to any other for wholesomeness, digestion, and extenuation. In short, the Scripture is so pregnant with proofs of the extraordinary richness and fecundity of this once happy land, and the vast number of people that lived in it, almost wholly upon its product, to say nothing of the vast exports of its corn, wine, oil, raisins, and other fruits, &c. that a man must have taken a strange warp to infidelity, that can call it in question, merely on account of the melancholy and quite opposite figure it now makes under its present tyrannical government.

But its fertility has been called in question; and Voltaire and other infidel writers have raised difficulties and objections against the authority of Scripture, from the pretended sterility of the land of Judea. In answer to which, the Abbé Guenée, about the year 1780, communicated to the Academy of Inscriptions and Belles Lettres at Paris, *Two Memoirs concerning the Fertility of Palestine*, in order to show that such objections had no solid foundation.

In the first of them, the author proves, that from the captivity of Babylon to the war of Adrian, Judea was always considered as a rich and fertile country. The positive and multiplied authorities of the writers of that period, Jews, Greeks, and Romans, not only attest in general the fertility of that country, but many of these writers, entering into a particular detail of circumstances, prove it from the nature of the climate, the qualities of the soil, and the excellencies and variety of its productions. These are confirmed by proofs of another kind, but which are of a very convincing nature, even those resulting from a great number of medals struck under the reigns of the kings of Syria and Judea, and under the Romans, both by Jews and Pagans, and which all bear the symbols of a rich fertility. To these proofs are added a multitude of facts, recorded in the history of the Jews during this period; the efforts of the neighbouring kings to conquer their country; the long and bloody wars that the Jews carried on with vigour, and sometimes with success, against powerful princes and nations; the tribute and taxes they paid to the kings of Egypt and Syria, to the Romans, and to their own princes; the magnificence of their sovereigns, and among others of Herod; the troops he raised and kept on foot; the temples, fortresses, palaces, and cities, which he erected and embellished, not only in his own country, but also in Syria, Asia Minor, and even in Greece; the immense sums he lavished among the Romans, the donations he made to his own people, and the vast treasures which he left behind him: all these circumstances concur in proving the fertility and riches of Palestine during that period. Palestine.

In the second memoir, the Abbé Guenée considers the state of Palestine as it was from the time of the emperor Adrian to the caliphate of Omar, which comprehends a period of four centuries. From sundry facts he shows, that it could not then have been the barren country which it has been represented by some sceptical writers. He particularly mentions the project formed by Adrian of rebuilding and embellishing Jerusalem, of forming it into a Roman colony, and giving it his own name; a project of which he could never have entertained a thought, if Judea, which he had seen and examined with his own eyes, had appeared to him such a barren and wretched country as it is said to be by some who have neither seen that country nor examined the matter with care and attention. Our author also produces a variety of other facts, to show that Judea, after all that it had suffered from the desolations of war both in ancient and latter times, still remained at the period in question fertile, rich, and populous. This is the idea which the writers of the time, Pagan and Christian, as well as Jewish, have given of Palestine. Antoninus Martyr, a citizen of Placentia, who in the 6th century travelled to Palestine, and composed an account of his voyage, which is still extant, says, that the canton of Nazareth was not inferior to Egypt in corn and fruits; and that though the territory of that city was not very extensive, it abounded in wine and oil, and excellent honey. The country about Jericho appeared to him still more fertile. He saw Mount Tabor, which he represents as surrounded with cities: and he observed, in the neighbourhood of Jerusalem, vineyards, great plantations of fruit trees, and through the whole country a considerable number of hospitals, monasteries, and beautiful edifices. Our learned abbé, in concluding his work, acknowledges, that the opulence and fertility of Judea might begin to diminish towards the middle of the period treated of in his second memoir: but he does not think

Paleſtine. think that any argument can be drawn from hence againſt its having been at the commencement of this period in a flouriſhing ſtate; and much leſs can any proof be brought from hence, that in preceding periods, under the kings, or under the adminiſtration of Moſes, the country of Paleſtine was a barren and uncultivated diſtrict.

Beſides, it ought to be conſidered, that it was then inhabited by an induſtrious people, who knew how to improve every inch of their land, and had made even the moſt deſert and barren places to yield ſome kind of productions, by proper care and manure; ſo that the very rocks, which now appear quite bare and naked, were made to produce corn, pulſe, or paſture; being, by the induſtry of the old inhabitants, covered with mould, which, through the lazineſs of the ſucceeding proprietors, has been ſince waſhed off with rains and ſtorms. We may add, that the kings themſelves were not above encouraging all kinds of agriculture, both by precept and example; and, above all, that they had the divine bleſſing promiſed to their honeſt endeavours and induſtry: whereas it is now, and hath been long ſince, inhabited by a poor, lazy, indolent people, groaning under an intolerable ſervitude and all manner of diſcouragements; by which their averſion to labour and agriculture, farther than what barely ſerves to ſupply their preſent wants, is become in a manner natural and invincible. We may further obſerve, after the judicious Mr Maundrell, that there is no forming an idea of its ancient flouriſhing ſtate, when under the influence of heaven, from what it is now under a viſible curſe. And, if we had not ſeveral concurring teſtimonies from profane authors, who have extolled the fecundity of Paleſtine, that ſingle one of Julian the Apoſtate, a ſworn enemy to Jews and Chriſtians, as well as to all the ſacred writings, would be more than ſufficient to prove it; who frequently makes mention, in his epiſtles, of the perpetuity, as well as excellence and great abundance, of its fruits and product. The viſible effects of God's anger, which this country has felt, not only under Titus Veſpaſian (when myriads of inhabitants were either ſlain, or periſhed by the moſt ſevere famine, peſtilence, and other calamities, and the reſt ſold for ſlaves into all lands; and new colonies ſent to repeople it, who found it in ſuch deſolate ſtate, as quite diſcouraged them from reſtoring it to its priſtine fruitfulneſs); but much more ſince that emperor's time, in the inundations of the northern barbarians, of the Saracens, and of the more cruel and deſtructive Chriſtians during the cruſades; and in the oppreſſion it now feels under the Turkiſh yoke; may be eaſily owned to be more than ſufficient to have wrought the diſmal change we are ſpeaking of, and to have reduced the far greater part into a mere deſert.

Nevertheleſs, if we may credit thoſe who have viewed it in this doleful condition, they will tell us, there are ſtill ſuch viſible ſigns of its natural richneſs and fertility, as plainly ſhow, that the bare want of culture is the main if not the only cauſe of its preſent poverty and barrenneſs. We ſhall hint, as a farther proof of this, what a learned traveller hath lately written of it from his own obſervations.

"The Holy Land (ſays Dr Shaw), were it as well peopled and cultivated as in former times, would ſtill be more fruitful than the very beſt part of the coaſt of Syria and Phœnice; for the ſoil is generally much richer, and, all things conſidered, yields a preferable crop. Thus the cotton that is gathered in the plains of Ramah, Eſdraelon, and Zabulun, is in greater eſteem than what is cultivated near Sidon and Tripoli. Neither is it poſſible for pulſe, wheat, or any ſort of grain to be more excellent than what is ſold at Jeruſalem. The barrenneſs, or ſcarcity rather, which ſome authors may, either ignorantly or maliciouſly, complain of, doth not proceed from the incapacity or natural unfruitfulneſs of the country, but from the want of inhabitants, and the great averſion there is to labour and induſtry in thoſe few who poſſeſs it. There are, beſides, ſuch perpetual diſcords and depredations among the petty princes who ſhare this fine country, that, allowing it was better peopled, yet there would be ſmall encouragement to ſow, when it was uncertain who ſhould gather in the harveſt. Otherwiſe, the land is a good land, and ſtill capable of affording its neighbours the like ſupplies of corn and oil which it is known to have done in the time of Solomon." Paleſtine.

And Volney, in his Travels in Egypt and Syria, obſerves, that though the whole of Paleſtine is almoſt an entire level plain, without either river or rivulet in ſummer, and only watered by the winter torrents, the ſoil is yet good, and may even be termed fertile: for when the winter rains do not fail, every thing ſprings up in abundance; and the earth, which is black and fat, retains moiſture ſufficient for the growth of grain and vegetables during the ſummer. More doera, ſeſamum, water melons, and beans, are ſown here than in any other part of the country. They alſo raiſe cotton, barley, and wheat; but though the latter be moſt eſteemed, it is leſs cultivated, for fear of too much inviting the avarice of the Turkiſh governors and the rapacity of the Arabs.

Judea, in its largeſt ſenſe, was divided into maritime and inland, as well as into mountainous and champain; and again ſubdivided into Judea on this ſide, and Judea beyond Jordan. But the moſt conſiderable diviſion is that which was made among the twelve tribes, by lot, to prevent all murmuring and diſcontent among that ſtubborn people †; of theſe, two and a half were ſeated beyond Jordan, and the reſt on this ſide. The next remarkable was made by King Solomon, who divided his kingdom into twelve provinces or diſtricts, each under a peculiar officer; and every one of theſe was to ſupply the king with proviſions for his houſehold in his turn; that is, each for one month in the year ‡. But the moſt fatal diviſion of all was that which obtained under his imprudent ſon Rehoboam; when ten of the twelve tribes revolted, under the conduct of Jeroboam, who became head of this new monarchy, ſtyled *the kingdom of Iſrael*, in oppoſition to that of *Judah*, the title which diſtinguiſhed the maimed kingdom of Rehoboam from that time downwards. Under the ſecond temple the diſtinction laſted a conſiderable time, and the ſame bloody hatred and hoſtilities continued between theſe two kingdoms; that of Iſrael taking the name of *Samaria* from its capital. The inhabitants were a mixture of the old Iſraelites, and of new colonies ſent thither by the kings of Aſſyria after their conqueſt of it, till they were ſubdued by the Maccabees, and their metropolis deſtroyed. Under the Romans it began to be divided into tetrarchies and toparchies: the larger were thoſe of Judea, Samaria, and Galilee, Upper and Lower; the leſſer, thoſe of Gerariticа, Sarona, and others of leſs note; all which lay on this ſide of the Jordan. The reſt, on the

† *Joſh.* xiv. 2. &c.

‡ 1 *Kings*, iv. 7. &c.

Palestine || Palfrey.

the other side, were those of Gilead, Peræa, Gaulonitis, Auranitis, Batanea, and Decapolis. Josephus mentions † another division made in Gabinius's time into five districts, or, as he styles them, συνέδρια or *councils*, agreeable to the Roman manner: these were Jerusalem, Jericho, and Sephoris on this side Jordan; and Gadaris and Amathus on the other. In the reigns of the Christian emperors, it was divided afresh into Palestina Prima, Palestina Secunda, and Palestina Tertia or Salutaris; which last included the far greater part, if not the whole country, as is known to all who are acquainted with history. On that account we shall wave all other divisions and changes that happened to it under the northern barbarians, Saracens, &c. and conclude this article with the present state and division of it under the Turks.—The whole country of Palestine is now reduced to a district or province, under the beglerbegate or bassaship of Sacham or Damascus, who hath the seven following sangiacs or subgovernors under him, styled, according to the different places of their residence, 1. The sangiac of Damascus, who is under the basha of that province; 2, Of Jerusalem, or, as the Turks call it, *Cudjembaric* or *Coudscherif*; 3. Aglum; 4. Bahara; 5. Scifat; 6. Gaza; 7. Nabolos. Each of these has a number of ziamets, and each ziamet a number of timariots under them; for the better understanding of which terms, we shall refer our readers to Sir Paul Rycaut's account of the Ottoman empire. At present it will be sufficient to say of these inferior subdivisions, under the sangiac of this district, or sangiacate of Jerusalem, that it hath nine of the former and sixteen of the latter class. Neither must the reader imagine these sangiacates or sub-governments to be any thing considerable, or the residence of these officers to be places of any note or opulence. The former indeed live by oppressing the people under them, and exort contributions of every thing that comes within their reach, such as the protection of travellers, merchants and caravans; but being all under their respective bashas, who are still more griping than their underlings, they are commonly fleeced of some considerable part of their unjust gains. As for the places of their residence, except it be here and there one in a considerable city, as at Damascus and Jerusalem, the rest are either some old cities or even inconsiderable villages.

† *Antiq.* lib. xiv.

There are a variety of curiosities in Palestine both natural and artificial; but they are so very numerous as almost to preclude description: we therefore refer our readers to the Ancient Universal History, vol. ii. where they are mentioned and particularly described. The principal mountains, rivers, and other places of note, have already been, or will be, noticed under their respective names.

PALESTRINA, a town of Italy, in the Campagnia di Roma, with a bishop's see. It is the capital of a principality of the same name, and the bishop is one of the six cardinal bishops. It was anciently famous for the temple of Fortune, being then called *Prænestæ*, and seated on the top of a mountain, the ruins of which may yet be seen. E. Long. 12. 55. N. Lat. 41. 51.

PALESTRINA, is one of the largest and most populous of the islands called the Lagunes near Venice, and where the most considerable of the noblemen have houses of pleasure. It is 15,000 paces in length and 400 in breadth; the principal harbour has also the same name.

PALFREY, is one of the better sort of horses used by noblemen or others for state; and sometimes of old taken for a horse fit for a woman to ride. Camden says, that William Fauconberge held the manor of Cuckeny, in the county of Nottingham, in serjeantry, by the service of shoeing the king's palfrey when the king should come to Mansfield.

Palicaud || Palingenesia.

PALICAUD, or PALGATCHERRY, a fortress of considerable strength in India, which commands the passage between the two coasts of Malabar and Coromandel, by way of the Tritchinopoly and Coimbettore countries: there is also a communication with it through the Nayre country. It was held by the English; and was of great importance to them, when Coimbettore was in the hands of Tippoo, because, by our holding this place on the west, and Dindigul on the east of Coimbettore, that province was of little use to him in the time of war, without a very large force to protect it. But the fall of that sovereign, and the reduction of his territories, have effected a total change of circumstances. See Memoir of a Map of the Peninsula of India by Major Rennel.

PALICATE, a sea port town of India, on this side of the Ganges. It is seated on the coast of Coromandel, in the kingdom of Carnate, 70 miles north of Fort St George. Here the Dutch had a factory, and fort called the *Fort of Guelderland*. E. Long. 80. 1. N. Lat. 13. 34.

PALICI, or PALISCI, in *Fabulous History*, two deities, sons of Jupiter by Thalia, whom Æschylus, according to Macrobius, calls *Ætna*, in a tragedy which is lost. The nymph Ætna, when pregnant, begged Jupiter to remove her from the pursuit of Juno. Upon which he concealed her in the bowels of the earth; and when the time of her delivery arrived, the earth opened and brought into the world two children, to whom were given the name of *Palici*, απο του παλιν ιεσθαι, *because they came again into the world from the bowels of the earth*. These deities were worshipped with many ceremonies by the Sicilians; and near their temple were two small lakes, which were supposed to have sprung out of the earth when they were born. Near these pools it was usual to take the most solemn oaths when any body wished to decise controversies and quarrels. If any of the persons who took the oaths were perjured, they were immediately punished supernaturally; and those whose oath, by the deities of the place, was sincere, departed unhurt. The Palici had also an oracle, which was consulted upon some great emergencies, and which rendered the truest and most unequivocal answers. In a superstitious age, the altars of the Palici were stained with the blood of human sacrifices; but this barbarous custom did not last long, as the deities were satisfied with the usual offerings.

PALINDROMUS, a verse or sentence which runs the same when read either backwards or forwards. Such is the verse,

Roma tibi subito motibus ibit amor.

Some people of leisure have refined upon the Palindromus, and composed verses, each word of which is the same backwards as forwards; for instance, that of Camden:

Odo tenet mulum, madidam mappam tenet Anna.
Anna tenet mappam madidam, mulum tenet Odo.

PALINGENESIA, among divines, the same with regeneration. Among the older chemists, it denotes the producing of a body from its principles.

PALINGENIUS,

Palingenius || Pall.

PALINGENIUS, MARCELLUS, an Italian poet, well known by a poem divided into 12 books, and entitled *Zodiacus Vitæ*, which he was ſeveral years in compoſing, and dedicated to Hercules II. of Eſte, duke of Ferrara. Some ſay he was a phyſician to that prince: others rank him among the learned Lutherans, to whom the ducheſs of Ferrara gave a reception in her court, and honoured with her protection. His *Zodiac* contains good things, and is a philoſophical ſatire againſt immorality and falſe prejudices. Of the author's life, however, but little is known. He died ſome time between the years 1537 and 1543.

PALINODY, a diſcourſe contrary to former avowed principles: hence the phraſe of *palinodiam canere* was taken for a recantation.

PALINURI PROMONTORIUM (Virgil, Velleius), with a cognominal port, was ſituated at the ſouth extremity of the Sinus Pæſtanus on the coaſt of Lucania: ſo called from Palinurus, Æneas's ſteerſman, who there periſhed (Mela, Dionyſius Halicarnaſſeus).

PALINURUS, in *Fabulous Hiſtory*, Æneas's pilot, whoſe fate Virgil very particularly deſcribes. He fell into the ſea when aſleep; and was three days expoſed to the tempeſts and its agitation, and at laſt came ſafe aſhore, when the cruel inhabitants of the place murdered him to get his clothes. His body was left unburied on the ſea ſhore: and ſince, according to the religion of the old Romans, no one could croſs the Stygian lake before 100 years were elapſed, if his remains had not been decently buried, we find Æneas, when he went down to hell, ſpeaking to Palinurus, and aſſuring him, that though his bones were deprived of a funeral, yet the place where his body was expoſed ſhould ſoon be adorned with a monument, and bear his name; and accordingly a promontory was called *Palinurus*.

PALISADES, in fortification, ſtakes made of ſtrong ſplit wood, about nine feet long, ſix or ſeven inches ſquare, three feet deep in the ground, in rows about two and a half or three inches aſunder, placed in the covert way, at three feet from, and parallel to, the parapet or ſide of the glacis, to ſecure it from ſurpriſe. They are alſo uſed to fortify the avenues of open forts, gorges, half moons, the bottoms of ditches, and in general all poſts liable to ſurpriſe. They are uſually fixed perpendicularly, though ſome make an angle inclining towards the ground next the enemy, that the ropes caſt over them to tear them up may ſlip off.

Turning PALISADES; an invention of M. Coehorn, in order to preſerve the paliſades of the covert way from the beſiegers ſhot. They are ſo ordered, that as many of them as ſtand in the length of a rod, or about ten feet, turn up and down like traps, ſo as not to be in ſight of the enemy till they juſt bring on their attack; and yet are always ready to do the proper ſervice of paliſades.

PALISSE, in *Heraldry*, a bearing like a range of paliſades before a fortification, repreſented on a feſſe, riſing up a conſiderable height, and pointed a-top, with the field appearing between them.

PALIURUS, in *Botany*. See RHAMNUS, BOTANY *Index*.

PALL, in *Heraldry*, a figure like a Greek γ, about the breadth of a pallet; it is by ſome heralds called a *croſs pall*, on account of its being looked upon as an archiepiſcopal bearing.

Palla || Palladius.

PALLA, in Roman antiquity, a mantle which women wore over the gown called *ſtola*. It was borne on the left ſhoulder; whence paſſing to the other ſide, under the right arm, the two ends were bound under the left arm, leaving the breaſt and arm quite bare. It had a great many folds, and derived its name from παλλω, to *ſhake* or *tremble*.

PALLADIO, ANDREA, a celebrated Italian architect of the 16th century, was a native of Vicenza in Lombardy, and the diſciple of Triſſin. He made exact drawings of the principal works of antiquity in Rome, adding commentaries to them, which went through ſeveral impreſſions. But this, though a very uſeful work, was greatly exceeded by the Treatiſe of Architecture in four books, which he publiſhed in 1570. Inigo Jones wrote ſome excellent remarks on it; which were included in an edition of Palladio, publiſhed by Leoni, in two vols. folio, 1741.

PALLADIUM, in antiquity, a ſtatue of the goddeſs Pallas. It was about three cubits high, and repreſented the goddeſs ſitting and holding a pike in her right hand, and in her left a diſtaff and a ſpindle. It fell down from heaven near the tent of Ilus, as he was building the citadel of Ilium. Some, however, ſuppoſe, that it fell at Peſſinus in Phrygia; or, according to others, Dardanus got it as a preſent from his mother Electra. There are ſome who maintain, that the palladium was made with the bones of Pelops by Abaris; but Apollodorus ſays, that it was no more than a piece of clockwork which moved of itſelf. However various the opinions of ancient authors be about this celebrated ſtatue, it is univerſally allowed, that on its preſervation depended the ſafety of Troy. This fatality the Greeks, during the Trojan war, were well aware of; and therefore Ulyſſes and Diomedes were commiſſioned to ſteal it. This they effected; and if we can rely upon the authority of ſome, they were directed how to carry it away by Helenus, a ſon of Priam, who in this betrayed his country, becauſe his brother Deiphobus, at the death of Paris, had married Helen, of whom he was enamoured. Minerva was enraged at the violence offered to her ſtatue; and, according to Virgil, the palladium itſelf ſeemed to have received life and motion; and by the flaſhes which ſtarted from its eyes, and ſudden ſprings from the earth, it ſeemed to ſhow the reſentment of the goddeſs. The true palladium, as is obſerved by ſome, was not carried away from Troy by the Greeks, but only a ſtatue of ſimilar ſize and ſhape, which was placed near it, to deceive whatever ſacrilegious perſons attempted to ſteal it. The palladium, therefore, as they maintain, Æneas conveyed ſafe from Troy to Italy, and it was afterwards preſerved by the Romans with the greateſt ſecrecy and veneration in the temple of Veſta; a circumſtance which none but the veſtal virgins knew. It was eſteemed the deſtiny of Rome; and there were ſeveral others made perfectly like it, to ſecure it from being ſtolen, as was that of Troy, which the oracle of Apollo declared ſhould never be taken ſo long as the palladium was found within its walls. A palladium was alſo placed by Nicias in the citadel of Athens.

PALLADIUM, one of the newly diſcovered metals, which is found alloyed with platina. See CHEMISTRY *Index*, and ORES, *Reduction of*, under *Platina*.

PALLADIUS, biſhop of Helenopolis in Bithynia, and then of Aſpona. He was a Galatian, and born at Cappodocia,

Pallas, Pallavicini.

Cappadocia. He became an anchorite in the mountain of Nebria in 388, and was conſecrated a biſhop in 401. He was an intimate friend of St John Chryſoſtom, whom he never forſook during the time of his perſecution, nor even in his exile. He went to Rome ſome time after Chryſoſtom's death, and at the requeſt of Lauſus governor of Cappadocia, compoſed the Hiſtory of the Anchorites or Hermits, and entitled it *Lauſiaca*, after the name of that lord, to whom he dedicated it in 420, when it was written, being then the 20th year of his epiſcopacy, and 53d of his age. Palladius was accuſed of being an Origeniſt. It is true, he was an enemy to St Jerome, of whom he does not ſpeak well, and was intimately connected with Ruffinus; but perhaps no good proof can be brought of his Origeniſm. He had been the diſciple of Evagrius of Pontus, and was even ſuſpected of entertaining the ſentiments of Pelagius. He died in the 5th century, but in what year is not certain. His Hiſtory was publiſhed in Greek by Meurſius at Amſterdam in 1619, and in Latin in the *Bibliotheca Patrum*: but he ſeems not to have been the writer of the Life of St John Chryſoſtom, in Greek and Latin by M. Bigot printed in 1680.

PALLAS, a freed man of Claudius, celebrated for the power and the riches which he obtained. He adviſed the emperor his maſter to marry Agrippina, and to adopt her ſon Nero for his ſucceſſor. It was through him and Agrippina that the death of Claudius was haſtened, and that Nero was raiſed to the throne. Nero, however, forgot to whom he was indebted for it. He diſcarded Pallas, and ſome time after cauſed him to be put to death, that he might procure his great riches.

PALLAS, a ſmall planet lately diſcovered, and belonging to the ſolar ſyſtem. See PLANET.

PALLAVICINI, FERRANTE, an Italian writer, deſcended from a noble family in Placentia, was born about the cloſe of the 16th century. He ſoon gave proofs of an extraordinary genius, and quickly improved in claſſical erudition. He was afterwards ſent to complete his education in the monaſtery of Auguſtin friars at Milan, where he took the habit, lived much eſteemed for piety and learning, and raiſed great expectations of future fame; but being ſomewhat amorouſly inclined, he engaged in an intrigue with a young courtezan of Venice, whoſe charms proved irreſiſtible; and in order to enjoy them without reſtraint, he obtained leave from his general to make the tour of France. Accordingly, he pretended to ſet out for that country; but it was only a blind to cover his real deſign. He never left Venice, but lived there privately, enchanted in the arms of his Venus: and having too ready a talent at invention, he impoſed upon his friends by often ſending them in letters feigned accounts of his travels through France; alſo informing them of ſeveral things reſpecting that court, which he learned from the advices of many conſiderable perſons with whom he correſponded.

His finances were in the mean time greatly reduced; and in this exigence he naturally had recourſe to his wits for ſupplies. He wrote for the bookſellers; and compoſed ſeveral pieces, more for the ſake of lucre than out of fondneſs for authorſhip. Among other things, he wrote a collection of letters, moſtly ſatirical, which he called *The Courier Robbed of his Mail*. The work appeared at firſt in ſuch a caſt, as could not give great offence except to the Spaniards, againſt whom he had ſome grudge. The piece was accordingly licenſed by the inquiſitors; but falling into the hands of the ſecretary of the republic of Venice, who at that time was licenſer of books, he would not give his imprimatur, though great intereſt was employed for that purpoſe, neither would he return the manuſcript. This enraged Pallavicini ſo much, that had not his friends reſtrained him, he would have purſued the affair to his ruin. Pallavicini.

At length he found an opportunity of travelling into Germany with the duke of Amalfi as his chaplain. This journey, as was to be expected, had no good effect either upon his wit or his morals. On the contrary, finding himſelf, from the manners of the Germans, more at liberty, he indulged his genius and paſſions with greater eaſe; and after a reſidence there of upwards of a year with the duke, he returned to Venice. He was now reſolved to have his full meaſure of revenge againſt the ſecretary of the republic for keeping his manuſcript; and with him his reſentment joined the family of Barberini, Pope Urban VIII. and his nephews, becauſe they alſo endeavoured, at the inſtigation of the Jeſuits, to get all his manuſcripts forbid the preſs. In this rancorous ſpirit he caſt his Courier into a new model, and enlarged it with many letters and diſcourſes. Thus new modelled, he offered it to a bookſeller, who undertook to get it printed; but our author was betrayed by a pretended friend; who acted the part of a ſpy, and informed the archbiſhop of Vitelli, then the pope's nuncio at Venice, juſt as the work was finiſhed at the preſs: at the ſame time, this treacherous friend bought the whole impreſſion; and upon the nuncio's complaint, Pallavicini was impriſoned. In this miſerable condition he found a friend in one of his miſtreſſes, who, ſeeing him abandoned by moſt of his patrons, not only ſupported him, but conveyed letters to him, by which ſhe gave him ſuch information as enabled him to make a proper defence, and to recover his liberty.

But a war having in the mean time broken out between the Barberini and the duke of Parma; Pallavicini, in order to revenge himſelf upon the ſuppoſed inſtruments of his impriſonment, wrote a piece entitled "The tinkling Inſtrument to call together the Barberini Bees;" and dedicated it in terms of the profoundeſt contempt to the nuncio Vitelli. The nuncio finding that little notice was taken of his complaints on the occaſion, procured by bribery one Charles Morſu, a Frenchman of infamous character, who pretended to paſs for a gentleman, to enſnare Pallavicini: to which end, the traitor uſed his beſt endeavours to inſinuate himſelf into his friendſhip, and at length exhorted him to accompany him to France. He declared that his fortune would be made by the extraordinary encouragement which was given to men of letters by Cardinal Richelieu: and the better to favour the deceit, he produced feigned letters from the Cardinal, inviting our author to France, and expreſſing a deſire he had to eſtabliſh in Paris an academy for the Italian tongue, under the direction of Pallavicini. The ſnare took; and now, faſcinated by the proſpect of gain, Pallavicini ſuffered himſelf to be led like an ox to the ſlaughter, whatſoever Morſu thought proper. He left Venice much againſt the advice of his friends, and went firſt to Bergamo, where he ſpent a few

Pallavicini few days with some of his relations, by way of giving some entertainment to Morfu. They then set off for Geneva, to the great satisfaction of our author, who proposed to get some of his works printed there, which he had not been able to do in Italy. Morfu, however, instead of conducting him to Paris, took the road to Avignon; where, crossing the bridge of Soraces, in the county of Venaissin, they were seized by a gang of *sbirri*, or sheriff's officers, on pretence of carrying contraband goods, and confined. Morfu was quickly discharged, and very liberally rewarded; but Pallavicini, being carried to Avignon, was imprisoned; and notwithstanding, on his examination concerning some papers found upon him, he made a very artful defence, it was in vain. The sentence was already brought from Rome, and he was to undergo a trial merely for form's sake. For this purpose being put into a dark dungeon, he made another effort to escape. He managed matters so well with his keeper, as to procure wax candles to be allowed him, under pretence of amusing himself with reading, and when he had got a number of these, he set fire one night to the prison door, in order to get off by that means; but the stratagem did not succeed, and he was of course confined much closer, and treated with great inhumanity. After a year's suffering, he was brought to trial, in which he made an excellent defence, and flattered himself with hopes of relief. He had even begun a whimsical piece on the subject of melancholy; but, contrary to his expectations, he was sentenced to die, and lost his head on a scaffold in the flower of his age.

He was of so heedless and profuse a disposition, that had he possessed an immense estate he would have spent it all. He was never engaged in a virtuous passion, being inflamed to a prodigious and unnatural degree with the love of the meanest and most infamous prostitutes. On the other hand, no one could be more sincere and faithful in his friendships, nor was ever a man a greater prey to treachery; insomuch, that when released from prison in Venice, he was told that a wretch had betrayed him, he could not be prevailed upon to believe it, saying, "How can this be, since he declared himself my friend, and I made him privy to all my concerns!" He used, while he wore a religious habit, to study or write two or three hours in bed every morning. The rest of the day he spent either in the company of idle persons, or else with the ladies: but after he had wholly left the monastic life, upon pretence of securing himself from the snares of his enemies, he lived in a very irregular manner. He was possessed of a fine genius, had a great facility in writing; and till he was corrupted by the commerce of mean lewd women, he wrote pieces worthy of immortality. He did not spend much time or pains either in composition or in revision, for he frequently sent to the press the very first exertions of his genius; yet nature had given him so noble a vein of eloquence, which he had greatly improved by perusing the best authors, that his first thoughts were often equal to the most laboured compositions. He was modest, and spoke of himself with diffidence: but his works are strongly tinctured with envy, malice, and gall. He made but a poor figure in conversation; and when with persons of worth and distinction, would often retire to a corner of the room, and seem quite wrapt up in thought. He never exerted his wit and humour after his return from Germany, but when he was in the company of some mean women. Upon the whole, it is difficult to determine whether vice or virtue was the most predominant feature in his character. His death gave birth to a dialogue, entitled, *Anima erranti di Ferrante Pallavicini*, or, "The wandering Ghost of Pallavicini." Besides his life at the head of his works in two volumes, there is another prefixed to the "Divortio celeste," at Amsterdam, 1696. Pallene || Pallo.

PALLENE, a small peninsula of Thrace or Macedonia, formerly called *Phlegra*. It is situated near the bay of Thermæ, and contains five cities, the principal of which is called *Pallene*. It was famous, according to some of the ancients, for an engagement between the gods and the giants.

PALLET, among painters, a little oval table, or piece of wood or ivory, very thin and smooth; on and round which the painters place the several colours they have occasion for, to be ready for the pencil. The middle serves to mix the colours on, and to make the tints required in the work. It has no handle, but, instead thereof, a hole at one end to put the thumb through to hold it.

PALLET, among potters, crucible makers, &c. a wooden instrument, almost the only one they use, for forming, beating, and rounding their works. They have several kinds: the largest are oval, with a handle; others are round, or hollowed triangularly; others, in fine, are in manner of large knives, serving to cut off whatever is superfluous on the moulds of their work.

PALLET, in gilding, an instrument made of a squirrel's tail, to take up the gold leaves from the pillow, and to apply and extend them on the matter to be gilt. See GILDING.

PALLET, in *Heraldry*, is nothing but a small pale, consisting of one half of it in breadth, and therefore there are sometimes several of them upon one shield.

PALLET, is also a part belonging to the balance of a watch or movement. See the article WATCH.

PALLIATÆ, a name which the Romans gave to such plays as laid the plot in Greece, and required the performers to appear in Grecian habits. It is used in contradistinction to *togatæ*, in which the scene was laid at Rome, and in which the dresses were Roman. The word palliatæ is derived from *pallium*, which was a part of dress peculiar to the Greeks; whereas the toga belonged to the Romans only. See TOGATÆ, COMEDY, &c.

PALLIATION, or a PALLIATIVE *Cure*, in medicine, is when, in desperate and incurable diseases, after predicting the fatal event, the physician prescribes some remedies for mitigating the pain or some other urgent symptoms, as in ulcerated cancers, or cancerous fistulas, and the like.

PALLIO *Cooperire*. It was an ancient custom, where children were born out of lawful wedlock, and their parents were afterwards married, that those children, together with the father and mother, should stand *pallio cooperti*, under a cloth, while the marriage was solemnizing; which was a kind of adoption, and had the effect of a legitimation. Thus Robert Grosthead, the famous bishop of Lincoln, in one of his letters says: *In signum legitimationis, nati ante matrimonium consue-*

Pallium. || Palma.

verunt poni ſub pallio *ſuper parentes eorum extento in matrimonii ſolemnizatione.*

Selden, in his notes on Fleta, adds, that the children of John of Gaunt, duke of Lancaſter, by Catharine Swinford, though legitimated by act of parliament, yet were *covered with the pall* when the parents were married.

PALLIUM, a word often mentioned in our old hiſtorians. Durandus tells us, that it is a garment made of white wool, after the following manner, viz. The nuns of St Agnes, every year, on the feaſt day of their ſaint, offer two white lambs on the altar of their church, during the time they ſing *Agnus Dei*, in a ſolemn maſs; which lambs are afterwards taken by two of the canons of the Lateran church, and by them given to the pope's ſubdeacons, who ſend them to paſture till ſhearing time, and then they are ſhorn, and the pall is made of their wool mixed with other white wool. The pall being thus made, is carried to the Lateran church, and there placed on the high altar, by the deacons of that church, on the bodies of St Peter and St Paul; and after an uſual watching, it is carried away in the night, and delivered to the ſubdeacons, who lay it up ſafe. And becauſe it was taken from the body of St Peter, it ſignifies the plenitude of eccleſiaſtical power: and therefore it was the prerogative of popes, who pretend to be the immediate ſucceſſors of that ſaint, to inveſt other prelates with it; which at firſt was done nowhere but at Rome, though afterwards at other places.

PALLIUM, in antiquity, an upper garment or mantle worn by the Greeks, as the toga was by the Romans. Each of theſe was ſo peculiar to the reſpective nations, that *Palliatus* is uſed to ſignify a Greek, and *Togatus* a Roman.

PALM, has among almoſt all nations been regarded as an emblem of victory, and aſſigned as the reward of it. The reaſon why this tree was adopted, and made uſe of to repreſent victory, is ſaid to be, becauſe it is ſo elaſtic, that if preſſed by the great weight, it will riſe ſuperior to the preſſure, and be able to reſtore itſelf to its former ſtate, appearing almoſt invincible.

PALM-Sunday, in the Chriſtian church, the Sunday next before Eaſter; being ſo called in memory of our Saviour's triumphal entry into Jeruſalem, when the multitude that attended him ſtrewed branches on his way.

The ancients had other names for this day. For, 1. They call it *Dominica Competentium*, i. e. Sunday of the Competentes; becauſe on that day the catechumens came to aſk the biſhop leave to be admitted to baptiſm, which was conferred the Sunday following. They had alſo then given them the ſymbol or credo, to get off by heart, to be repeated to the biſhop in the ceremony of baptiſm. 2. They called it *Capitiluvium*, the Sunday of waſhing the head; becauſe thoſe who were to be baptized the following Sunday were prepared by waſhing their heads on this day. Some time afterwards they called it *Indulgence Sunday*, becauſe the emperors and patriarchs uſed to diſtribute gifts on that day.

PALM-Tree. See PHOENIX, BOTANY *Index*.

PALMA, or *PALMA Nova*, a very ſtrong town of Italy, in Friuli, in the territory of Venice. It is a very important place, for the defence of the Venetians againſt the Auſtrians and Turks; and was built in 1593, for that very purpoſe. They have cut a canal near this place, which is very advantageous. It is ſeated on the ſea ſide, 10 miles ſouth-eaſt of Udino, and 55 north-eaſt of Venice. E. Long. 13. 15. N. Lat. 46. 2.

Palma || Palmerſton's iſland

PALMA, an iſland in the Atlantic ocean, and one of the Canaries, 56 miles north-weſt of Gomera, and about 75 in circumference. It abounds in wine and ſugar; and has a handſome town of the ſame name, which carries on a trade in wine to the Weſt Indies and other parts. Their beſt vines grow in a ſoil called the *Brenia*, where they make 12,000 butts of wine every year, which is well known by the name of *palm wine*. There is plenty of cattle, and all ſorts of fruits. In 1625 a volcano broke out in this iſland, with a moſt violent earthquake; the flame was ſeen for ſix weeks together, and a great quantity of aſhes were thrown as far as Teneriffe. It was conquered by the Spaniards in 1460.

PALMÆ, *Palms*. Under this name Linnæus has arranged ſeveral genera, which, although capable of a place in ſeparate claſſes of his ſyſtem, he chooſes rather, on account of their ſingular ſtructure, to place apart, in an appendix to the work.—See BOTANY *Index*.

The ſame plants conſtitute one of the ſeven families or tribes into which all vegetables are diſtributed by Linnæus in his *Philoſophia Botanica*. They are defined to be plants with ſimple ſtems, which at their ſummit bear leaves reſembling thoſe of the ferns, being a compoſition of a leaf and a branch; and whoſe flowers and fruit are produced on that particular receptacle or ſeat called a *ſpadix*, protruded from a common calyx in form of a ſheath or ſcabbard, termed by Linnæus *ſpatha*.

Palmæ is likewiſe the name of the firſt order in Linnæus's Fragments of a Natural Method.

PALMARIS MUSCLE, in *Anatomy*. See there, *Table of the Muſcles*.

PALMATED, ſomething reſembling the ſhape of the hand: thus we ſay, palmated leaves, roots, ſtones, &c.

PALMERSTON'S ISLAND, ſituated in the South Seas, which Captain Cook viſited in his ſecond and laſt voyages. It conſiſts of a group of ſmall iſlets, nine or ten in number, connected by a reef of coral rocks, and lying in a circular direction. It admits of no anchorage, nor are there any inhabitants on it, though it abounds with cocoa nuts, ſcurvy graſs, and the wharra tree. This iſland is not more than a mile in circumference, and is not elevated above three feet above the level of the ſea. It conſiſts entirely of a coral ſand, with a ſmall mixture of blackiſh mould, which appeared to be produced from rotten vegetables. "At one part of the reef (ſay our navigators), which bounds the lake within, almoſt even with the ſurface, there was a large bed of coral, which afforded a moſt enchanting proſpect. Its baſe, which was fixed to the ſhore, extended ſo far that it could not be ſeen, ſo that it appeared to be ſuſpended in the water. Even this delightful ſcene was greatly improved by the multitude of fiſhes that gently glided along, ſeemingly with the moſt perfect ſecurity. Their colours were the moſt beautiful that can be imagined, blue, yellow, black, red, &c. far excelling any thing that can be produced by art. The richneſs

Palmipedes || Palmyra.

richneſs of this ſubmarine grotto was greatly increaſed by their various forms; and the whole could not poſſibly be ſurveyed without a pleaſing tranſport, accompanied at the ſame time with regret, that a work ſo aſtoniſhingly elegant ſhould be concealed in a place ſo ſeldom explored by the human eye." E. Long. 196. 35. S. Lat. 18. 8.

PALMIPEDES, among ornithologiſts, the ſame with web-footed birds. See ORNITHOLOGY.

PALMISTRY, a kind of divination, or rather a deceitful art practiſed by gypſies, who pretend to foretel events by looking upon the lines and marks of the hand.

PALMUS, a long meaſure uſed both by the Greeks and Romans. The Grecian palmus was of two ſorts; the greater, which contained nine finger breadths, and the leſs which contained four. The Roman palmus was alſo of two ſorts; the greater, which contained twelve finger breadths, or eight inches and a half Engliſh; and the leſs, which contained four finger breadths, or near three inches Engliſh.—The great palmus was taken from the length of the hand or ſpan; the leſs from the breadth of it. The Greek palmus was called *doran*. See MEASURE.

PALMYRA, or TADMOR, a noble city of ancient Syria, now in ruins, the origin of whoſe name is uncertain. Neither is it well known by whom this city was built; for though, from the identity of the names, it is thought by many to have been the *Tadmor in the wilderneſs* built by Solomon *, this point, however, is much controverted by many learned men. For the world have been long and juſtly aſtoniſhed to find in the deſert of Syria, at a diſtance from the ſea, with a very precarious and ſcanty ſupply of water only, and without a particular connexion with any great monarchy, ruins of a city more extenſive and ſplendid than Rome itſelf, the depoſitary of all the arts which Greece in its moſt flouriſhing periods could afford. The problem is an intricate one; yet when we diveſt it of many of its difficulties, we ſhall bring this ſtupendous prodigy to no very uncommon magnitude. The coaſt of Syria was in very early ages rich and populous; and either from the conveniency of procuring water, or from the vicinity of India and Egypt, the population, inſtead of increaſing on the mountains, extended to Judea, and from thence through its plains only to the internal parts. The ruins of this numerous people, and of their habitations, remain; but as their edifices were not uncommonly ſplendid, or, as the cauſes of their deſtruction were powerful, they have not attracted much attention. Yet the ruins of more than 30 towns are diſcoverable to the ſouth-eaſt of the Dead Sea, and from thence towards Tadmor or Palmyra; we know the cauſe of the deſtruction of theſe towns, and we know that it did not reach Palmyra. This ſplendid city was not, therefore, inſulated in a maſs of ſand: it was probably a link of a continued chain of population, or perhaps its termination. The ſituations of towns in the ſandy deſert muſt neceſſarily be determined by local advantages. Tadmor is ſituated where two hills converge, and beyond the point where they approach. Theſe hills afforded water, that neceſſary aid to animal life; and the aqueducts through which it was brought from them were diſcovered and deſcribed by Mr Wood. Though the other towns now in ruins afford ſome remains of luxury and opulence, yet in theſe reſpects they are much inferior to Palmyra; and this deſerves to be explained. Palmyra was undoubtedly very ancient. "The two ſprings of freſh water it poſſeſſes (ſays Volney †) were, above all, a powerful inducement in a deſert everywhere elſe ſo parched and barren. Theſe, doubtleſs, were the two principal motives which drew the attention of Solomon, and induced that commercial prince to carry his arms ſo remote from the limits of Judea." "He built ſtrong walls there (ſays the hiſtorian Joſephus), to ſecure himſelf in the poſſeſſion, and named it *Tadmor*, which ſignifies the Place of Palm trees." Hence it has been inferred that Solomon was its firſt founder; but we ſhould, from this paſſage, be rather led to conclude that it was already a place of known importance. The palm trees he found there are not the trees of uninhabited countries. Prior to the days of Moſes, the journeys of Abraham and Jacob from Meſopotamia into Syria, ſufficiently prove a communication between theſe countries, which muſt ſoon have made Palmyra flouriſh. The cinnamon and pearls mentioned in the time of the Hebrew legiſlator, demonſtrate a trade with India and the Perſian gulf, which muſt have been carried on by the Euphrates and Palmyra. At this diſtance of time, when the greater part of the monuments of theſe early ages have periſhed, we are liable to form very falſe opinions concerning the ſtate of theſe countries in thoſe remote times, and are the more eaſily deceived, as we admit as hiſtorical facts antecedent events of an entirely different character. If we obſerve, however, that men in all ages are united by the ſame intereſts and the ſame deſires, we cannot help concluding, that a commercial intercourſe muſt early have taken place between one nation and another, and that this intercourſe muſt have been nearly the ſame with that of more modern times. Without, therefore, going higher than the reign of Solomon, the invaſion of Tadmor by that prince is ſufficient alone to throw a great light on the hiſtory of this city. The king of Jeruſalem would never have carried his attention to ſo diſtant and detached a ſpot, without ſome powerful motive of intereſt; and this intereſt could be no other than that of an extenſive commerce, of which this place was already the emporium. This commerce extended itſelf to India; and the Perſian gulf was the principal point of union."

Palmyra.

† *Travels through Syria and Egypt.*

From the nature of the commodities, from the requiſite aſſiſtance of the Tyrians, and other forcible arguments, M. Volney ſhows that the Perſian gulf was the centre of the moſt ancient commerce of the eaſtern world; and that it was with a view of obtaining a ſhorter route, by means of the Euphrates, that Solomon turned his attention to Tadmor, diſtant but three days journey from it. Our author goes on, "We may even reaſonably conjecture, when we reflect on the revolutions of the following ages, that this commerce became a principal cauſe of thoſe various wars in Lower Aſia, for which the barren chronicles of thoſe early times aſſign no motives. If, after the reign of Solomon, the Aſſyrians of Nineveh turned their ambitious views towards Chaldea, and the lower part of the Euphrates, it was with the intention to approach that great ſource of opulence the Perſian gulf. If Babylon, from being the vaſſal of Nineveh, in a ſhort time became her rival, and the ſeat of a new empire, it was becauſe her ſituation rendered her the emporium of this lucrative trade; in ſhort, if the kings of this great city waged perpetual

* 1 Kings, ix. 18. and 2 Chron. viii. 4 and Joſephus, Ant. Jud. lib. i.

Palmyra. wars with Jeruſalem and Tyre, their object was not only to deſpoil theſe cities of their riches, but to prevent their invading their trade by the way of the Red ſea. An hiſtorian who has informed us that Nabuchodonoſor, before he laid ſiege to Jeruſalem, took poſſeſſion of Tadmor, clearly indicates that the latter city acted in concert with the two neighbouring capitals. Their gradual decline became, under the Perſian empire, and the ſucceſſors of Alexander, the efficient cauſe of the ſudden greatneſs of Palmyra in the time of the Parthians and Romans; ſhe then enjoyed a long peace for many centuries, which allowed her inhabitants to erect thoſe monuments of opulence whoſe ruins we ſtill admire." If the former obſervations ſhowed the connection of this remote ſpot with a more populous country, theſe remarks explain the cauſe of the renovation, and of the magnificence of this city. Our author's remarks are at leaſt probable, and are, in our opinion, very convincing. Cairo, in another, probably a ſubordinate route, never attained the ſplendour of Palmyra; but the genius of the Egyptians, perhaps the laws of Egypt, prevented it.

There is, however, no authentic hiſtory of Palmyra till after the captivity of the Roman emperor Valerian by the Perſians. It is firſt mentioned by the Roman hiſtorians, as a place which Mark Antony attempted to plunder, upon pretence that it had not obſerved a juſt neutrality between the Romans and Parthians. Pliny takes notice of it as being ſituated in a rich ſoil, among pleaſant ſtreams, and totally ſeparated from the reſt of the world by a vaſt ſandy deſert, which had preſerved its independence between Parthia and Rome. There is ſtill a conſiderable ſpot of good ſoil next the town and on the hills; and even in the wilderneſs, there were palms and fig trees, ſome of which remained till the latter end of the 17th century, though not one is now to be found.

After the captivity of Valerian, it was become an opulent city, to which its ſituation in the vicinity of the Roman and Parthian empires greatly contributed; as the caravans, in going to or returning from the eaſt, frequented the place, and thus rendered it a conſiderable ſeat of merchandiſe. It enjoyed an independency till the time of Trajan; who, having made himſelf maſter of almoſt all the Parthian empire, reduced Palmyra likewiſe, and it was afterwards accounted part of the Roman dominions. But when the defeat and captivity of Valerian had ſo much weakened the empire, that the Perſians ſeemed to be in a fair way of becoming maſters of all the eaſtern provinces, the Palmyrenians began to entertain thoughts of recovering their liberty. Odenathus, prince of Palmyra, ſent a very reſpectable letter to Sapor on his return, accompanied with conſiderable preſents; but by that haughty conqueror his letter and embaſſy were treated with the moſt provoking contempt. The preſents were thrown into the Euphrates: and to his letter Sapor replied, That his inſolence in preſuming to write to his lord was inexcuſable; but if he could atone for it in any way, it would be by preſenting himſelf before the throne, bound hand and foot, in token of a conſciouſneſs of his crime, and the puniſhment he deſerved. With this injurious treatment Odenathus was ſo provoked, that he ſwore either to bring down the pride of the haughty conqueror, or die in the attempt. Accordingly, having aſſembled what forces he could, he fell upon the Perſians, deſtroyed a number of them, took a great part of their baggage, and ſome of the king's concubines. Of the war of Odenathus with the Perſians, however, we know very little: only that though the latter were often vanquiſhed and the independency of Palmyra eſtabliſhed for the preſent; yet Valerian was never releaſed from his captivity, though Odenathus earneſtly wiſhed to have the honour of reſcuing him from his enemies. Palmyra.

Odenathus enjoyed his ſovereignty but a very ſhort time; being murdered by his nephew, who was ſoon after put to death by Zenobia the wife of Odenathus. This lady is ſaid to have been poſſeſſed of very extraordinary endowments both of body and mind, being, according to Mr Gibbon, almoſt the only Aſiatic woman who is recorded to have overcome the obſtacles ariſing from the confined ſituation of the fair ſex in that part of the world. Immediately on taking vengeance for the murder of her huſband, ſhe aſſumed the government, and ſoon ſtrengthened herſelf ſo much, that ſhe reſolved to ſubmit neither to the Roman nor Perſian power. The neighbouring ſtates of Arabia, Armenia, and Perſia, dreaded her enmity, and ſolicited her alliance. To the dominions of Odenathus, which extended from the Euphrates to the frontiers of Bithynia, his widow added the inheritance of her anceſtors, the populous and fertile kingdom of Egypt. The emperor Claudius acknowledged her merit, and was content, that, while he purſued the Gothic war, ſhe ſhould aſſert the dignity of the empire in the eaſt. The conduct, however, of Zenobia, was attended with ſome ambiguity; nor is it unlikely that ſhe had conceived the deſign of erecting an independent and hoſtile monarchy. She blended with the popular manners of Roman princes the ſtately pomp of the courts of Aſia, and exacted from her ſubjects the ſame adoration that was paid to the ſucceſſors of Cyrus. She beſtowed on her three ſons a Latin education, and often ſhowed them to the troops adorned with the imperial purple. For herſelf ſhe reſerved the diadem, with the ſplendid but doubtful title of *Queen of the eaſt*.

When Aurelian paſſed over into Aſia, againſt an adverſary whoſe ſex alone could render her an object of contempt, his preſence reſtored obedience to the province of Bithynia, already ſhaken by the arms and intrigues of Zenobia. Advancing at the head of his legions, he accepted the ſubmiſſion of Ancyra; and was admitted into Tyana, after an obſtinate ſiege, by the help of a perfidious citizen. The generous, though fierce temper of Aurelian, abandoned the traitor to the rage of the ſoldiers: a ſuperſtitious reverence induced him to treat with lenity the countrymen of Apollonius the philoſopher. Antioch was deſerted on his approach; till the emperor, by his ſalutary edicts, recalled the fugitives, and granted a general pardon to all who, from neceſſity rather than choice, had been engaged in the ſervice of the Palmyrenian queen. The unexpected mildneſs of ſuch a conduct reconciled the minds of the Syrians, and as far as the gates of Emeſa, the wiſhes of the people ſeconded the terror of his arms.

Zenobia would have ill deſerved her reputation, had ſhe indolently permitted the emperor of the Weſt to approach within 100 miles of her capital. The fate of the Eaſt was decided in two great battles; ſo ſimilar in almoſt every circumſtance, that we can ſcarcely diſtinguiſh

Palmyra. guiſh them from each other, except by obſerving that the firſt was fought near Antioch, and the ſecond near Emeſa. In both, the queen of Palmyra animated the armies by her preſence, and devolved the execution of her orders on Zabdas, who had already ſignalized his military talents by the conqueſt of Egypt. The numerous forces of Zenobia conſiſted for the moſt part of light archers, and of heavy cavalry clothed in complete ſteel. The Mooriſh and Illyrian horſe of Aurelian were unable to ſuſtain the ponderous charge of their antagoniſts. They fled in real or affected diſorder, engaged the Palmyrenians in a laborious purſuit, haraſſed them by a deſultory combat, and at length diſcomfited this impenetrable but unwieldy body of cavalry. The light infantry, in the mean time, when they had exhauſted their quivers, remaining without protection againſt a cloſer onſet, expoſed their naked ſides to the ſwords of the legions. Aurelian had choſen theſe veteran troops, who were uſually ſtationed on the Upper Danube, and whoſe valour had been ſeverely tried in the Allemannic war. After the defeat of Emeſa, Zenobia found it impoſſible to collect a third army. As far as the frontier of Egypt, the nations ſubject to her empire had joined the ſtandard of the conqueror; who detached Probus, the braveſt of his generals, to poſſeſs himſelf of the Egyptian provinces. Palmyra was the laſt reſource of the widow of Odenathus. She retired within the walls of her capital; made every preparation for a vigorous reſiſtance; and declared with the intrepidity of a heroine, that the laſt moment of her reign and of her life ſhould be the ſame.

In his march over the ſandy deſert, between Emeſa and Palmyra, the emperor Aurelian was perpetually haraſſed by the Arabs; nor could he always defend his army, and eſpecially his baggage, from thoſe flying troops of active and daring robbers, who watched the moment of ſurpriſe, and derided the ſlow purſuit of the legions. The ſiege of Palmyra was an object far more difficult and important; and the emperor, who with inceſſant vigour preſſed the the attacks in perſon, was himſelf wounded with a dart. "The Roman people, (ſays Aurelian in an original letter), ſpeak with contempt of the war which I am waging againſt a woman. They are ignorant both of the character and of the power of Zenobia. It is impoſſible to enumerate her warlike preparations, of ſtones, of arrows, and of every ſpecies of miſſile weapons. Every part of the walls is provided with two or three baliſtæ, and artificial fires are thrown from her military engines. The fear of puniſhment has armed her with a deſperate courage. Yet I truſt ſtill in the protecting deities of Rome, who have hitherto been favourable to all my undertakings." Doubtful, however, of the protection of the gods, and of the event of the ſiege, Aurelian judged it more prudent to offer terms of an advantageous capitulation: to the queen, a ſplendid retreat; to the citizens, their ancient privileges. His propoſals were obſtinately rejected, and the refuſal was accompanied with inſult.

The firmneſs of Zenobia was ſupported by the hope that in a very ſhort time famine would compel the Roman army to repaſs the deſert; and by the reaſonable expectation that the kings of the Eaſt, and particularly the Perſian monarch, would arm in the defence of their moſt natural ally. But fortune, and the perſeverance of Aurelian, overcame every obſtacle. The death of Sapor, which happened about this time, diſtracted the Palmyra. councils of Perſia; and the inconſiderable ſuccours that attempted to relieve Palmyra were eaſily intercepted either by the arms or the liberality of the emperor. From every part of Syria a regular ſucceſſion of convoys ſafely arrived in the camp, which was increaſed by the return of Probus with his victorious troops from the conqueſt of Egypt. It was then that Zenobia reſolved to fly. She mounted the fleeteſt of her dromedaries; and had already reached the banks of the Euphrates, about 60 miles from Palmyra, when ſhe was overtaken by the purſuit of Aurelian's light-horſe, ſeized, and brought back a captive to the feet of the emperor. Her capital ſoon after ſurrendered, and was treated with unexpected lenity. The arms, horſes, and camels, with an immenſe treaſure of gold, ſilver, ſilk, and precious ſtones, were all delivered to the conqueror; who, leaving only a garriſon of 600 archers, returned to Emeſa, and employed ſome time in the diſtribution of rewards and puniſhments at the end of ſo memorable a war, which reſtored to the obedience of Rome thoſe provinces that had renounced their allegiance ſince the captivity of Valerian.

When the Syrian queen was brought into the preſence of Aurelian, he ſternly aſked her, How ſhe had preſumed to riſe in arms againſt the emperors of Rome? The anſwer of Zenobia was a prudent mixture of reſpect and firmneſs: "Becauſe I diſdained to conſider as Roman emperors an Aureolus or a Gallienus. You alone I acknowledge as my conqueror and my ſovereign." But as female fortitude is commonly artificial, ſo it is ſeldom ſteady or conſiſtent. The courage of Zenobia deſerted her in the hour of trial; ſhe trembled at the angry clamours of the ſoldiers, who called aloud for her immediate execution; forgot the generous deſpair of Cleopatra, which ſhe had propoſed as her model; and ignominiouſly purchaſed life by the ſacrifice of her fame and her friends. It was to their councils, which governed the weakneſs of her ſex, that ſhe imputed the guilt of her obſtinate reſiſtance; it was on their heads that ſhe directed the vengeance of the cruel Aurelian. The fame of Longinus, who was included among the numerous and perhaps innocent victims of her fear, will ſurvive that of the queen who betrayed, or the tyrant who condemned him. Genius and learning were incapable of moving a fierce unlettered ſoldier, but they had ſerved to elevate and harmoniſe the ſoul of Longinus. Without uttering a complaint, he calmly followed the executioner, pitying his unhappy miſtreſs, and beſtowing comfort on his afflicted friends.

Returning from the conqueſt of the Eaſt, Aurelian had already croſſed the ſtraits which divide Europe from Aſia, when he was provoked by the intelligence that the Palmyrenians had maſſacred the governor and garriſon which he had left among them, and again erected the ſtandard of revolt. Without a moment's deliberation, he once more turned his face towards Syria. Antioch was alarmed by his rapid approach, and the helpleſs city of Palmyra felt the irreſiſtable weight of his reſentment. We have a letter of Aurelian himſelf, in which he acknowledges, that old men, women, children, and peaſants, had been involved in that dreadful execution, which ſhould have been confined to armed rebellion: and although his principal concern ſeems directed to the re-eſtabliſhment of a

temple

Palmyra. temple of the ſun, he diſcovers ſome pity for the remnant of the Palmyrenians, to whom he grants the permiſſion of rebuilding and inhabiting their city. But it is eaſier to deſtroy than to reſtore. The ſeat of commerce, of arts, and of Zenobia, gradually ſunk into an obſcure town, a trifling fortreſs, and at length a miſerable village.

Little is known concerning the fortunes of Palmyra ſince the time of Mahomet, except that it was conſidered as a place of ſtrength: and that in the 12th century there were 2000 Jews in it. With reſpect to the ruins, they appeared to be of two different and diſtinct periods; the oldeſt are ſo far decayed as not to admit of menſuration, and look as if they had been reduced to that ſtate by the hand of time; the others appear to have been broken into fragments by violence. Of the inſcriptions none are earlier than the birth of Chriſt, and none are later than the deſtruction of the city by Aurelian, except one, which mentions Dioclefian.

Mr Wood is of opinion, that the face of the country which ſurrounds Palmyra was always the ſame; but though Palmyra was always ſaid to be ſituated in a wilderneſs, it does not follow that the wilderneſs was always of the ſame extent: It is perhaps more probable, that when Palmyra was firſt ſettled, the rich ſoil mentioned by Pliny extended much farther; for whatever were the reaſons for making a ſettlement there, Palmyra can ſcarcely be ſuppoſed to have invited a greater number of people than it could feed. The palms and fig trees that were formerly found on the hills, and in the borders of the deſert, that are now totally barren, confirm this opinion. Mr Wood obſerves, that while he was there a whirlwind happened, which took up ſuch quantities of ſand as quite darkened the ſky; this ſand therefore might by degrees encroach upon the fertile environs of Palmyra, and reduce the number of inhabitants as it reduced their ſuſtenance, till the few wretched families only were left, who found it difficult to furniſh food for Mr Wood and his company, though they did not continue longer than a fortnight among them. It will alſo appear from hiſtory, that what is ſuppoſed to have happened here has happened at other places, where ſuch an event was much leſs probable. * On the ſea coaſt in the neighbourhood of St Pol de Leon, in Lower Bretagne, there is a conſiderable tract of land which before the year 1666 was inhabited, but which was rendered uninhabitable by a ſand, which encroaching every year, covered it to the depth of above 20 feet. In the year 1718 it had advanced more than ſix leagues, and within one league of St Pol; ſo that it was then thought probable that the town would of neceſſity be abandoned. This ſand is raiſed by the eaſt or north-eaſt wind, which drives it in clouds with great ſwiftneſs, and in a prodigious quantity. It was alſo atteſted by the captain of a ſhip, and all on board, that in the year 1719 there fell in the Atlantic ocean, at 15 degrees of north latitude, and at the diſtance of more than eight leagues from any land, a ſhower of ſand, ſome of which they produced, and depoſited in the academy at Paris †.

* *Memoirs of French Academy for 1718.*

† *Hiſt. of the Acad. 1772.*

The company with whom Mr Wood, the publiſher of the Ruins of Palmyra, travelled, arrived at length at the end of the plain, where a ridge of barren hills, by which it was divided on the right and left, ſeemed to meet; between them there was a vale, through which an aqueduct formerly conveyed water to Palmyra. On each ſide of this vale they remarked ſeveral ſepulchres of the ancient Palmyrenes, which they had ſcarce paſſed, when the hills opening on a ſudden, they diſcovered ſuch piles of ruin as they had never ſeen. They were all of white marble; and beyond them, towards the Euphrates, was a wide level, ſtretching farther than the eye could reach, totally deſolate, without variety, and without bounds. After having gazed ſome time upon this proſpect, which rather exceeded than fell ſhort of their expectations, they were conducted to one of the huts of the Arabs, of which there are about 30 in the court of the great temple. The inhabitants of both ſexes were well ſhaped, and the women, though very ſwarthy, had good features. They were veiled, but did not ſo ſcrupulouſly conceal their faces as the eaſtern women generally do. They paint the ends of their fingers red, their lips blue, and their eyebrows and eyelaſhes black. They had large rings of gold or braſs in their ears and noſtrils, and appeared to be healthy and robuſt. The walls of the city are flanked by ſquare towers, into which ſome ancient funeral monuments have been converted; but the walls are in moſt places level with the ground, and ſometimes not to be traced. It is, however, probable, by their general direction, that they included the great temple, and are three miles in circumference. The Arabs ſhowed a tract which was near ten miles in circumference, the ſoil of which was raiſed a little above the level of the deſert: this, they ſaid, was the extent of the old city; and that by digging in any part of it ruins were diſcovered. Palmyra.

Theſe ruins conſiſt of temples, palaces, and porticoes of Grecian architecture; and lie ſcattered over an extent of ſeveral miles. They were accidentally diſcovered by ſome Engliſh travellers from Aleppo ſomewhat more than a century ago. By far the moſt remarkable of them is the Temple of the Sun, of which the ruins are ſpread over a ſquare of 220 yards. It was encompaſſed with a ſtately wall, built of large ſquare ſtones, and adorned with pilaſters within and without, to the number of 62 on a ſide. Within the court are the remains of two rows of very noble marble pillars 37 feet high, with their capitals of moſt exquiſite workmanſhip. Of theſe only 58 remain entire; but there muſt have been many more, for they appear to have gone round the whole court, and to have ſupported a double piazza. The walks on that ſide of the piazza which is oppoſite to the front of the caſtle ſeem to have been the moſt ſpacious and beautiful. At each end of this line are two niches for ſtatues, with their pedeſtals, borders, ſupporters, and canopies, carved with the utmoſt propriety and elegance. The ſpace within this incloſure, which is now filled with the dirty huts of the inhabitants, ſeems to have been an open court, in the middle of which ſtood the temple, encompaſſed with another row of pillars of a different order, and much taller, being 50 feet high; but of theſe 16 only remain. The whole ſpace contained within theſe pillars is 59 yards in length, and near 28 in breadth. The temple is no more than 33 yards in length, and 13 or 14 in breadth. It points north and ſouth; and exactly into the middle of the building, on the weſt ſide, is a moſt magnificent entry, on the remains

PALMYRA.



The Remains of the Great Temple of the Sun in Palmyra from the West.



A. Bell Prin. Wald Sculptor fecit.

Palmyra. mains of which are ſome vines and cluſters of grapes, carved in the moſt bold and maſterly imitation of nature that can be conceived. Juſt over the door are diſcerned a pair of wings, which extend its whole breadth: the body to which they belonged is totally deſtroyed; and it cannot now certainly be known whether it was that of an eagle or a cherub, ſeveral repreſentations of both being viſible on other fragments of the building. It is obſerved of the windows of this building, which were not large, that they were narrower at the top than below. The north end of the building is adorned with the moſt curious fret-work and bas-relief; and in the middle there is a dome or cupola about ten feet diameter, which appears to have been either hewn out of the rock, or moulded to ſome compoſition which by time is grown equally hard. North of this place is an obeliſk, conſiſting of ſeven large ſtones, beſides its capital and the wreathed work about it. It is about 50 feet high; and, juſt above the pedeſtal, is 12 feet in circumference. There was probably a ſtatue upon it, which the Turks, in their zeal againſt idolatry, deſtroyed. At about the diſtance of a quarter of a mile from this pillar, to the eaſt and weſt, are two others, beſides the fragment of a third; ſo that perhaps they were originally a continued row.

About 100 paces from the middle obeliſk, ſtraight forward, is a magnificent entry to a piazza, which is 40 feet broad, and more than half a mile in length, incloſed with two rows of marble pillars 26 feet high, and eight or nine feet in compaſs. Of theſe there ſtill remain 129; and, by a moderate computation, there could not originally have been leſs than 560. The upper end of the piazza was ſhut in by a row of pillars, ſtanding ſomewhat cloſer than thoſe on each ſide. A little to the left are the ruins of a ſtately building, which appears to have been a banqueting-houſe. It is built of better marble, and is finiſhed with yet greater elegance, than the piazza. The pillars which ſupported it were of one entire ſtone, which is ſo ſtrong, that one of them which is fallen down has received no injury. It meaſures 22 feet in length, and in compaſs 8 feet 9 inches. In the weſt ſide of the piazza are ſeveral apertures for gates into the court of the palace. Each of theſe was adorned with four porphyry pillars, not ſtanding in a line with thoſe of the wall, but placed by couples in the front of the gate facing the palace, two on each ſide. Two of theſe only remain entire, and but one ſtanding in its place. They are 30 feet long and 9 in circumference. On the eaſt ſide of the piazza ſtands a great number of marble pillars, ſome perfect, but the greater part mutilated. In one place 11 are ranged together in a ſquare: the ſpace which they incloſe is paved with broad flat ſtones, but there are no remains of a roof. At a little diſtance are the remains of a ſmall temple, which is alſo without a roof, and the walls are much defaced. Before the entry, which looks to the ſouth, is a piazza ſupported by ſix pillars, two on each ſide of the door, and one at each end. The pedeſtals of thoſe in front have been filled with inſcriptions both in the Greek and Palmyrene languages, which are become totally illegible. Among theſe ruins are many ſepulchres: they are ranged on each ſide of a hollow way, toward the north part of the city, and extend more than a mile. They are all ſquare towers, four or five ſtories high. But though they are alike in form, yet they differ greatly in magnitude and ſplendour. The outſide is of common ſtone, but the floors and partitions of each ſtory are marble. There is a walk acroſs the whole building, juſt in the middle; and the ſpace on each hand is ſubdivided into ſix partitions by thick walls. The ſpace between the partitions is wide enough to receive the largeſt corpſe; and in theſe niches there are ſix or ſeven piled upon one another. Palmyra.

Many inſcriptions have been found at Palmyra, which have occupied much of the attention of the learned; and if any thing certain could be derived from them, there is no doubt but they would tend very conſiderably to the elucidation of ancient hiſtory. See Barthelemy's Reflections on the Palmyrene Alphabet, publiſhed at Paris in 1754; and An Explication of the Inſcriptions at Palmyra hitherto publiſhed, by John Swinton of Chriſt-church, Oxford. See alſo Phil. Tranſ. N° 217. and 218.; the firſt volume of the Ancient Univerſal Hiſtory; and, above all, conſult the Ruins of Palmyra, or Tadmor in the Deſert, publiſhed by Mr R. Wood, who, with M. Bouverie and Mr Dawkins, travelled thither in 1751. The reſult of their obſervations was publiſhed in 1753, in the form of an atlas. The ruins of this once mighty and celebrated city are repreſented in 57 copperplates, 16 by 12 inches, printed on imperial paper. They are admirably executed; the drawing is correct and maſterly; and the engraving highly finiſhed: nor can they fail to give ſatisfaction to thoſe who are connoiſſeurs in the art, or to thoſe who delight in the labours of antiquity. See Plate CCCCIII.

Palmyra was viſited by Mr Bruce before his journey into Abyſſinia; but, on account of the many publications concerning theſe celebrated ruins, he has declined ſaying much concerning them. He informs us, that, before he came in ſight of the ruins, he aſcended a hill of white gritty ſtone, in a very narrow winding road, ſuch as is called a paſs; but on getting up to the top his eyes were ſtruck with the moſt ſtupendous ſight which, he believes, ever mortal ſaw. The whole plain below, which is very extenſive, was ſo covered with magnificent buildings, that they ſeemed to touch one another. All of them are finely proportioned, agreeably ſhaped, and compoſed of white ſtones, which at that diſtance appeared like marble. In taking a draught of theſe ruins, Mr Bruce divided the whole into ſix angular views, for which the ſituation of the place is very convenient. The columns are all uncovered to the very baſes, the ground on which they are built being hard and ſolid. The views he took were upon large paper; ſome of the columns being repreſented a foot long, and ſome of the figures in the foreground of the Temple of the Sun (a magnificent building which ſtood at one end of the town) being near four inches. Before he left Palmyra he obſerved its latitude with a reflecting quadrant of Hadley; but as the inſtrument was out of order, he could not determine it exactly. In his opinion, however, 33° 58′ is not far diſtant from truth. From ſuch obſervations as he could make on the longitude, he concluded it to be 37° 9′ eaſt from Greenwich. Mr R. Wood makes the latitude 34° north.

From Palmyra Mr Bruce proceeded to Baalbec, diſtant about 130 miles, where he found ruins ſtill more magnificent. The interior part of the great temple

at

Palpable || Pamphilus.

at this place, according to our author, ſurpaſſes any thing he had ſeen at Palmyra, or anywhere elſe. "All theſe views of Palmyra and Baalbec (ſays he) are now in the king's collection. They are the moſt magnificent offering, in their line, that ever was made by one ſubject to his ſovereign."—In the neighbourhood of Palmyra are ſome ſalt-marſhes; and to the adjacent country a trade is carried on in kelp from Tripoli in Syria. There are two Arab tribes, almoſt equally powerful; one of them, called Annecy, remarkable for the fineſt horſes in the world. They poſſeſs the country to the ſouth-weſt, at the back of Libanus, about Bozrah, and ſouthward towards the borders of Arabia Petræa and Mount Horeb. The other tribe, named Mowalli, inhabit the plains eaſt from Damaſcus, to the Euphrates, and north to near Aleppo. They are fewer in number than the Annecy, but much better ſoldiers; and their breed of horſes not greatly inferior.

Reſpecting the latitude and longitude there are ſtill various opinions: that which appears to be neareſt the truth is E. Long. 38. 50. N. Lat. 33. 20. It ſtands about 50 leagues ſouth-eaſt of Aleppo, as much from Damaſcus, and 20 leagues weſt of the Euphrates.

PALPABLE, ſomething perceivable by the ſenſes, particularly that of feeling.

PALPITATION *of the Heart*. See MEDICINE *Index*.

PALSY. See MEDICINE *Index*.

PALUDAMENTUM, in Roman antiquity, a habit that differed but little from the chlamys, except that this laſt belonged chiefly to the lower claſs of people. It was worn by the officers and principal men among the Romans in time of war, who are therefore called *Paludati*; which diſtinguiſhed them from the common ſoldiers, who, becauſe they wore the ſagum, were called the *Sagati*. The paludamentum came down only to the navel, was open on the ſides, had ſhort ſleeves reſembling angels wings, and was generally white or red. It is ſometimes uſed to ſignify the common ſoldier's coat.

PALUS MEOTIS, the ancient name of a gulf between Europe and Aſia, to the north of the Black ſea, now called the *ſea of Zabach*, or *Aſoph*.

PALY, or PALE, in *Heraldry*, is when the ſhield is divided into four or more equal parts, by perpendicular lines falling from the top to the bottom.

PALY Bende, is when the eſcutcheon is divided by perpendicular lines, which is *paly*; and alſo by diagonals, which is called *bendy*.

PAMBOUK, the Turkiſh name of the ruined city of Hierapolis. See HIERAPOLIS.

PAMPELUNA, the capital of the kingdom of Navarre in Spain, with a very ſtrong citadel and rich biſhopric. It is handſome and populous, and carries on a great trade, ſeated in a very fertile plain, in E. Long. 1. 25. N. Lat. 42. 42.

PAMPELUNA, a town of New Granada in South America, famous for its gold mines and numerous flocks of ſheep. W. Long. 68. 30. N. Lat. 6. 30.

PAMPHILUS, a celebrated painter of Macedonia, in the age of Philip. He was founder of the ſchool for painting at Sicyon; and he made a law which was obſerved not only in Sicyon but all over Greece, that none but children of noble and dignified perſons ſhould be permitted to learn painting. Apelles was one of his pupils. Pamphylia, Pan.

PAMPHYLIA, the ancient name of a country of Natolia, in Aſia, now called *Carimania* and *Cay-bay*, between Lycia and Cilicia, on the ſouth coaſt, to the north of the Mediterranean ſea.

PAN, the god of ſhepherds, hunters, and all country exerciſes. Such he is deſcribed by the Greek and Roman poets; but he bore a higher character among the earlieſt Greeks, as well as among the Egyptians; from whom his worſhip was borrowed by that people. In Egypt he was known by the name of *Mendes*, which, according to Jablonſki *, ſignifies fecundity. Hence his ſymbol was a living he-goat, the moſt ſalacious of all animals: "Hircum Mendeſium colunt Ægyptii, eo quod virtuti prolificæ ac genitivæ, conſecratus eſt.—Nam animal hoc coitus valde cupidum eſt." His principal temple was a magnificent building in a city of lower Egypt, called after his name. It is well known (ſee POLYTHEISM) that from dedicating certain animals to certain gods, the Egyptians proceeded to conſider the animals themſelves as actuated by the divinities to whom they were ſacred. Hence the origin of brute worſhip. In the temple of Mendes was kept a *he-goat*, to whom ſacrifices of a very monſtrous kind were offered. Herodotus, ſpeaking of the præfecture of *Mendes*, ſays †, Εγενετο δ' εν τω νομω τουτω επ εμευ τουτο το τερας γυναικι τραγος εμισγετο αναφανδον. Τουτο εσ επιδειξιν ανθρωπων απικετο. Our readers, learned and unlearned, will forgive us for not tranſlating this paſſage, which contains, however, nothing that is not confirmed by the teſtimony of other writers; particularly of Plutarch, and Pindar as he is quoted by Strabo. The moſt wonderful circumſtance of this monſtrous ſacrifice is, that it was made publicly in the preſence of a great concourſe of men! But to what divinity was it made? To a mere goat, or to ſome ſuperior principle animating the goat? Doubtleſs to the latter; for it is ſaid that the fair worſhippers were of the firſt rank, and of unſpotted fame; and that if they had borne a different character, the deity would not have accepted of their devotions.

* *Pantheon Egyptiorum.*

† Lib. ii. ch. 26.

The deity whom the Egyptians adored by the name of *Mendes*, was no other than the Soul of the Univerſe; for he was their moſt ancient god: and we are told by Plutarch ‡, "That they took the firſt God and the Univerſe for one and the ſame thing." Hence his name Παν among the Greeks: not that either the Greeks or their maſters in theology worſhipped, as the firſt god, mere brute matter, but that ſpirit which they conceived to be coeternal with matter, and to animate all things, making them *one*. Thus Orpheus, who imported the Egyptian doctrine into Greece, declares that all things are one: and after him Parmenidas, and other philoſophers, taught, εν ειναι το παν, that "one is the univerſe;" and that "the univerſe is immovcable." That the ancient Grecian *Pan*, or the Egyptian *Mendes*, was not the corporeal world, as ſenſeleſs and inanimate, but the whole ſyſtem of things, animated and eternal, appears further from the following teſtimony of Macrobius. "Hunc deum Arcades colunt, appellantes τον της υλης κυριον, non ſylvarum dominum, ſed univerſæ ſubſtantiæ materialis dominatorem;—The Arcadians worſhip this god, calling him the

‡ *De Iſid. et Oſir.*

lord

Pan. lord of HYLE; i. e. not the lord of the woods, but the lord of all material ſubſtance." In the ſame manner, Pharnutus * deſcribes the Pan of the other Greeks, not as the mere corporeal world, but as the intellectual principle actuating it and preſiding over it: and he adds, that "Pan was feigned to be laſcivious, becauſe of the multitude of *ſpermatic reaſons* in the world, and the continual mixtures and generation of things."

* *Inter. Thom. Gale Scriptores Mythol. vet.*

The Egyptians, as we learn from Jablonſki, had nearly the ſame notion with the Greeks of the ſpirit which they worſhipped as the Soul of the Univerſe; only they gave to it both ſexes. As the maker, governor, and bountiful father of univerſal nature, they conſidered it as a *male*, whoſe ſymbol was the *he-goat* of Mendes; and as a *female* it was adored by the name of *Iſis*, to whom the *ſhe-goat* was conſecrated, though not held in ſuch veneration as the male. From this view of the Egyptian creed, the ſacrifice which we have mentioned appears no longer unaccountable. It was made to a god, believed to be the univerſal ſource of fecundity, and to whom, from the well-known character of the animal, whom he was ſuppoſed to actuate, they had reaſon to believe it would be moſt acceptable.

The Greeks never worſhipped their Pan by the emblem of a living goat; but they painted him with the lower parts of a goat, for a reaſon which ſhall be afterwards mentioned. How he came to degenerate among that people, from one of the *Dii majorum gentium*, or rather from the firſt principle of all things, to the rank of a dæmon or demi-god, we cannot pretend to ſay: but that ſuch was his fate, is certain; for under this laſt character mention is made both of his birth and his death.

Whoſe ſon he was, is not agreed among them. Homer makes him the ſon of Mercury, and ſays he was called *Pan* from παν, *omne*, becauſe he charmed all the gods with his flute; others ſay that he was the ſon of Demogorgon, and firſt invented the organ, of ſeven unequal reeds, joined together in a particular manner: Having on a time fought with Cupid, that god in ſpite made him fall in love with the coy nymph Syrinx, who, flying from him to the banks of Ladon, a river of Arcadia, at the inſtant prayers of the Nymphs was turned into a reed, as her name in Greek ſignifies, which the god graſping inſtead of her, made a pipe of it, and for his muſic was adored by the Arcadians. The moſt common opinion was, that he was the ſon of Mercury and Penelope. But *Nat. Comes*, out of *Duris Samius*, makes his birth ſcandalous, by ſaying he was called παν, becauſe begot by all Penelope's ſuitors. He was painted half-man half-goat, having large goats horns, a chaplet of pine on his red face, a pleaſant laughter, with the feet and tail of a goat; a motley ſkin covering his body, with a crooked ſtick in one hand and his pipe in the other. See him nicely deſcribed by *Sil. Ital.* 13. 326. *et ſeq.* a ſight enough to fright women and children, yea, armed men too; for when Brennus the Gaul was about to pillage the temple of Apollo at Delphos, he by night ſtruck ſuch a terror into his army, that he quitted his ſacrilegious deſign: hence *Panici terrores*. Yet, as homely as he was, he pleaſed the goddeſs Luna, turning himſelf eaſily into a white ram, Virgil, *Georg.* iii. 392. *et deinceps;* and the nymph Dryope alſo, almoſt putting off his divinity, and turning ſhepherd for her ſake. Neither was he diſpleaſing to other nymphs, who are generally made dancing round about him to hear the charms of his pipe. The uſual offerings made him were milk and honey, in ſhepherds wooden bowls; alſo they ſacrificed to him a dog, the wolf's enemy; whence his uſual epithet is λυκαιος; and whence alſo his prieſts were called *Luperci*. Pan.

His feſtival was celebrated on February 15th by the Romans, brought into Italy by Evander the Arcadian, and revived afterwards by Romulus, in memory of his preſerver. He was alſo called by the Romans *Inuus*, ab ineundo. *Vid.* Liv. i. 5. Macrob. Sat. i. 21. and Serv. in Virg. Æn. vi. 775. The ancients, by giving ſo many adjuncts and attributes to this idol as we have obſerved above, ſeem to have deſigned him for the ſymbol of the univerſe; his upper parts being human, becauſe the upper part of the world is fair, beautiful, ſmiling, like his face; his horns ſymbolize the rays of the ſun and of the moon; his red face, the ſplendor of the ſky; the ſpotted ſkin wherewith he is clothed, the ſtars which beſpangle the firmament; the roughneſs of his lower parts, beaſts and vegetables; his goat's feet, the ſolidity of the earth; his pipe, compact of ſeven reeds, the ſeven planets, which they ſay make the harmony of the ſpheres; his crook, bending round at the top, the years circling in one another. *Serv. Interpr.*

Having ſaid ſo much of Pan, both as a ſelf-exiſtent god and as a generated dæmon, we ſhall conclude the article with ſome obſervations on Plutarch's account of the prodigy which happened at his death; for in the Pagan creed, dæmons were not all believed immortal.—"In the reign of Tiberius (ſays our author*), certain perſons on a voyage from Aſia to Italy, and ſailing towards the evening by the Echinedes, were there becalmed, and heard a loud voice from the ſhore calling on one Thamus an Egyptian pilot whom they had on board. Thamus, as may be ſuppoſed, liſtened with attention; and the voice, after repeating his name thrice, commanded him when he came to the Pelodes, to declare that the *Great Pan* was dead. The man, with the advice of his companions, reſolved, that if they ſhould have a quick gale off the Pelodes, he would paſs by in ſilence; but that if they ſhould be becalmed, he would perform what the voice had commanded. Adhering to this reſolution, they ſoon arrived off the deſtined iſlands, and were immediately becalmed, there being neither breath of wind nor agitation of water. Upon this Thamus looking from the hinder part of the ſhip towards the land, pronounced with a loud voice ὁ μεγας Παν τεθνηκε, *The Great Pan is dead!* and was inſtantly anſwered from the ſhore by numberleſs howlings and lamentations."

* *Lib. de Oracul. Defect.*

This ſtory, which has ſo much the air of impoſture, has not only been admitted as truth by men of the firſt eminence for learning and acuteneſs, but has been applied to our Saviour, whoſe death (ſays Cudworth) the dæmons mourned not from love, but from a preſage that it would put a period to the tyranny and domination which they had ſo long exerciſed over the ſouls and bodies of men. In ſupport of this opinion, he quotes ſeveral paſſages of Scripture, ſuch as, "Now is the prince of this world judged;" and, "Having ſpoiled principalities and powers (by his death upon the croſs), he triumphed over them in it." He affirms likewiſe, that "Pan being taken for that rea-

Pan. son or understanding by which all things were made, and by which they are all governed, or for that divine wisdom which diffuseth itself through all things, is a name which might very well signify *God manifested in the flesh*."

The authority of Cudworth is great; but a groundless opinion has seldom been propped by weaker reasoning than he makes use of on this occasion. Plutarch indeed says, and seems to believe, that this prodigy fell out during the reign of Tiberius; but as he mentions not the year of that reign, there is no evidence that it was at the crucifixion of our Saviour. The dæmons who inhabited the Echinades knew what had been transacted at Jerusalem far distant from their islands; they knew the name of the pilot of a strange ship; they knew that the mariners of that ship had resolved to disobey their command, unless becalmed off the Pelodes; they had power over both the winds and waves at the *Pelodes*, and exerted that power to enforce obedience to their command; and yet these all-knowing and powerful beings were under the necessity of calling in the aid of a *man* to deliver a message to their companions, inhabiting a place to which the very same story assures us that their own power and knowledge reached. Should it be said that the dæmons were compelled by divine power thus publicly to make known to man Christ's triumph over the kingdom of darkness, we beg leave to ask why they were not likewise compelled to give him another name, since it is certain, that at the æra of Tiberius, and long before, illiterate Pagans, such as common seamen must be supposed to have been, knew no other *Pan* than the fabled son of Penelope and Mercury?—Indeed the other Pan, taken for that reason or understanding by which all things were made, could not possibly be the being here meant; for, erroneous as the Pagan system was, there is nothing in it so completely absurd as the death of the soul of the universe, the maker of all things: nor do we believe that any Pagan ever existed, who dreamed that such a death was possible.

What then, it will be asked, are we to understand by this story? Plutarch was eminent for knowledge and integrity, and he relates it without expressing a doubt of its truth. He does so; but many a man of worth has been credulous; and though that was not his character, this *prodigy* may be accounted for by natural means. Germanicus was believed to have been poisoned, at least with the knowledge, if not by the command, of Tiberius; and there was nothing which the Romans so deeply deplored as the untimely death of that accomplished prince*. They fancied that his body was animated, not by a human soul, but by a superior dæmon: and they decreed to him statues, religious ceremonies, and even sacrifices. His widow was highly honoured, as having been nearly related to a divinity, and his children were adored as demi-gods. These facts being admitted, nothing appears to us more probable than the opinion of the learned Mosheim†, who thinks that some shrewd statesman, in order to excite the popular fury against Tiberius to the highest pitch, invented this story, and bribed foreign mariners to spread it among the people, who would naturally believe, that by the great Pan was meant their favourite Germanicus. This hypothesis is at least countenanced by what Plutarch tells us of the anxiety of the emperor to discover what personage could be meant by the Pan whose death was announced to the seamen: he consulted the learned men of Rome, who, in order to restore peace to the city, declared that they understood it of none other than the son of Penelope and Mercury.

* *Tacit. Annal.* cap. 72. 83. *et* lib. iii. cap. 1.

† *Cudworth's Intel. Syst.* cap. 4. note 132.

Panacea ‖ Panama.

PANACEA, among physicians, denotes an universal medicine, or a remedy for all diseases; a thing impossible to be obtained.

PANADA, a diet consisting of bread boiled in water to the consistence of pulp, and sweetened with a little sugar.

PANAMA, the capital city of the province of Darien in South America, where the treasures of gold and silver, and the other rich merchandises of Peru, are lodged in magazines till they are sent to Europe. W. Long. 82. 15. N. Lat. 8. 57.

When Guzman first touched at this place in 1514, it consisted entirely of fishermen's huts. Orius d'Avila settled a colony here in a few years after, and in 1521 it was constituted a city by the emperor Charles V. with the proper privileges. In 1670 it was sacked and burnt by John Morgan, an English adventurer, who had the preceding year taken Porto Bello. This misfortune induced the inhabitants to remove the city to its present situation, distant about a league from the place where it stood before. For the greater security, the new city was inclosed by a free-stone wall, and the houses were built of stone and brick. Since that time several bastions have been added, and now there is always a complete garrison maintained, and the walls are mounted with large cannon. But, all these precautions could not save this city from another misfortune; it was entirely consumed by fire in the year 1737. After this accident it was again rebuilt, in the manner as it now stands, with neat elegant houses, but not magnificent. The inhabitants are rather independent in their fortunes than rich; there are few of them opulent, and scarce any in a state of poverty. As to the harbour, it is convenient, and well secured against storms by a number of surrounding islands, and is capable of containing the largest fleets. Here the royal audience is seated, at which the governor of Panama resides; for which reason this city is commonly deemed the capital of the province.

This place, a little while after it was founded, became the capital of the kingdom of Terra Firma. Some hopes were at first entertained from the three provinces of Panama, Darien, and Veragua, which composed it; but this prosperity vanished instantaneously. The savages of Darien recovered their independence; and the mines of the two other provinces were found to be neither sufficiently abundant, nor of an alloy good enough to make it worth while to work them. Five or six small boroughs, in which are seen some Europeans quite naked, and a very small number of Indians who have come to reside there, form the whole of this state, which the Spaniards are not ashamed of honouring with the great name of kingdom. It is in general barren and unwholesome, and contributes nothing to trade but pearls.

The pearl fishery is carried on in the islands of the gulf. The greatest part of the inhabitants employ such of their negroes in it as are good swimmers. These slaves plunge and replunge in the sea in search

of

Panama || Panathenæa.

of pearls, till this exercise has exhausted their strength or their spirits.

Every negro is obliged to deliver a certain number of oysters. Those in which there are no pearls, or in which the pearl is not entirely formed, are not reckoned. What he is able to find beyond the stipulated obligation, is considered as his indisputable property: he may sell it to whom he pleases; but commonly he cedes it to his master at a moderate price.

Sea monsters, which abound more about the islands where pearls are found than on the neighbouring coasts, render this fishing dangerous. Some of these devour the divers in an instant. The manta fish, which derives its name from its figure, surrounds them, rolls them under its body, and suffocates them. In order to defend themselves against such enemies, every diver is armed with a poniard: the moment he perceives any of those voracious fish, he attacks them with precaution, wounds them, and drives them away. Notwithstanding this, there are always some fishermen destroyed and a great number crippled.

The pearls of Panama are commonly of a very fine water. Some of them are even remarkable for their size and figure: these were formerly sold in Europe. Since art has imitated them, and the passion for diamonds has entirely superseded or prodigiously diminished the use of them, they have found a new mart more advantageous than the first. They are carried to Peru, where they are in great estimation.

This branch of trade has, however, infinitely less contributed to give reputation to Panama, than the advantage which it hath long enjoyed of being the mart of all the productions of the country of the Incas that are destined for the old world. These riches, which are brought hither by a small fleet, were carried, some on mules, others by the river Chagre, to Porto Bello, that is situated on the northern coast of the isthmus which separates the two seas. See DARIEN.

PANARI, one of the Lipari islands, lying in the Tuscan sea. It is only five miles in circumference, and the soil is barren. E. Long. 15. 0. N. Lat. 39. 0.

PANARO, a river of Italy, which rises in the Apennines, crosses the valley of Frignano, and running on the confines of the Modenese and Bolognese, waters Fenal, and falls into the Po at Bondeno, ten miles above Ferrara.

PANATHENÆA, παναθηναια, in Grecian antiquity, an ancient Athenian festival, in honour of Minerva the protectress of Athens, and called *Athenæa*. Harpocration and Suidas refer the institution of this festival to Erichthonius IV. king of Athens, who lived before Theseus. Theodoret alone says the feast was established by Orpheus. Be this as it will, till Theseus it was never a particular feast of the city of Athens, and was called simply *Athenæa*: but that prince, uniting all the people of Attica into one republic, they afterwards all assisted at the feast; whence the name *Panathenæa*, i. e. the feast of all Attica. In effect all Attica was present; and each people sent a bullock for the sacrifices, and for the entertainment of the vast multitude of people assembled.

There were two festivals under this denomination, the greater and the lesser. The greater panathenæa were exhibited every five years; the less every three, or, according to some writers, annually. Though the celebration of neither, at first, employed more than one day; yet in after-times they were protracted for the space of many days, and solemnized with greater preparations and magnificence than at their first institution. Panathenæa.

The ceremonies were the same in the great and the little panathenæa; excepting for a banner, wherein the actions of the goddess were represented in embroidery, performed by maids, with the names of those who had distinguished themselves in the service of the republic; which was only borne at the greater.

Prizes were established there for three different kinds of combat: the first consisted of foot and horse races; the second, of athletic exercises; and the third, of poetical and musical contests. These last are said to have been instituted by Pericles. Singers of the first class, accompanied by performers on the flute and cithara, exercised their talents here upon subjects prescribed by the directors of these exhibitions.

The following is the order observed in this festival, according to M. Barthelemi, who quotes numerous authorities on the occasion: "The inhabitants of the different towns of Attica thronged to the capital, leading with them a great number of victims destined for sacrifices to the goddess. In the first morning were the horse-races, in which the sons of the first citizens of Athens contended for the honour of the victory. In the stadium were other young men struggling for the prize at wrestling, and different exercises of the body; and in the odéum were several musicians engaged in gentler and less perilous contests. Some executed pieces on the flute or cithara; others sang, and accompanied their voices with one of these instruments. The subject proposed to them was the eulogium of Harmodius, Aristogiton, and Thrasybulus, who had rescued the republic from the yoke of the tyrants by which it was oppressed: for, among the Athenians, public institutions are so many monuments for the citizens who have served the state, and lessons for those who are called upon to render it service. A crown of olive, and a vessel filled with oil, were the prizes bestowed upon the victors. Crowns were afterwards conferred on individuals, who appeared to the people to have merited that mark of honour by their zeal in the service of their country. *Anacharsis*, vol. ii. p. 434.

"At the Ceramicus passed a procession, formed without the walls, and which began at that place to file off. It was composed of different classes of citizens crowned with chaplets of flowers, and remarkable for their personal beauty. Among the number were old men of a majestic and venerable appearance, bearing branches of olive; middle-aged men, who, armed with lances and with bucklers, seemed only to respire war; youth from 18 to 20, who sang hymns in honour of the goddess; beautiful boys, clad in a simple tunic, adorned only with their native graces; and, lastly, girls, who were of the first families in Athens, and whose features, shape, and deportment, attracted every eye. With their hands they held baskets on their heads, which, under a rich veil, contained sacred utensils, cakes, and every thing necessary for the sacrifices. Female attendants, who followed them, with one hand held over them an umbrella, and carried in the other a folding chair. This is a species of servitude imposed on the daughters of all foreigners settled at Athens: a servitude they share in common with their fathers and mothers, who likewise carried on their shoulders vessels filled with water and

Panathenæa ‖ Panay.

honey, for the purpoſe of libations. They were followed by eight muſicians; four of whom played on the flute and four on the lyre. After them came rhapſodiſts ſinging the poems of Homer; and dancers armed at all points, who, attacking each other at intervals, repreſented, to the ſound of the flute, the battle of Minerva with the Titans. Next came a ſhip that appeared to glide over the ground by the power of the wind, and the efforts of a great number of rowers, but which really was put in motion by concealed machinery. The veſſel had a ſail of light ſtuff, on which young girls had repreſented in embroidery the victory of Minerva over the Titans. On it alſo they had depicted, by order of the government, ſome heroes whoſe illuſtrious deeds had merited to be celebrated with thoſe of the gods. This proceſſion marched on with ſolemn ſteps, under the direction of ſeveral magiſtrates; and traverſed the moſt frequented quarter of the city amidſt a crowd of ſpectators, moſt of whom were placed on ſcaffolds erected for the occaſion. When it had reached the temple of the Pythian Apollo, the ſail of the ſhip was taken down and carried to the citadel, where it was depoſited in the temple of Minerva.

"In the evening, at the academy, was the torch race. The courſe is only ſix or ſeven ſtadia in length. It extends from the altar of Prometheus, which is at the gate of this garden, to the walls of the city. Several young men are ſtationed in this interval at equal diſtances. When the ſhouts of the multitude have given the ſignal, the firſt lights his flambeau at the altar, and, running with it, hands it to the ſecond, who tranſmits it in the ſame manner to the third, and ſo ſucceſſively. He who ſuffers it to be extinguiſhed can no more enter the liſts; and they who ſlacken their pace are expoſed to the railleries, and even blows, of the populace. To gain the prize, it is neceſſary to have paſſed through the different ſtations with ſucceſs. This trial of ſkill was frequently repeated, and is diverſified according to the nature of the feſtivals.

"The candidates who had been crowned at the different exerciſes invited their friends to ſupper. Sumptuous repaſts were given in the prytaneum and other public places, which laſted till the following day. The people among whom the immolated victims were diſtributed ſpread tables on every ſide, and gave a looſe to their lively and tumultuous mirth."

PANAX, Ginseng; a genus of plants belonging to the polygamia claſs. See Botany and Materia Medica *Index*.

PANAY, an iſland of Aſia, and one of the Philippines, lying between thoſe of Paragoa and Negro. It is 250 miles in circumference, and is the moſt populous and fertile of them all. It is watered by a great number of rivers and brooks, and produces a great quantity of rice. Its ſhape is triangular. The names of its principal capes are Potol, Naſo, and Bulacabi. The coaſt from Bulacabi to Potol lies eaſt and weſt; from Potol to Naſo, north and ſouth; from Bulacabi to Iloilo, another cape, leſs than the great ones, is alſo north and ſouth; from Iloilo to Cape Naſo, eaſt and weſt. The middle of the iſland is in the latitude of ten degrees. On the north ſide, almoſt in the middle between the two capes of Potol and Bulacabi, the famous river Panay falls into the ſea; and the mouth of the harbour is covered by a ſmall iſland called *Lutaya*, in which port the Spaniards had a ſafe retreat before they diſcovered and conquered Manilla and Gavité. The fertility of Panay is cauſed by the many rivers that water it, for there is no travelling a league without meeting a river; but more particularly by the Panay, which gives its name to the iſland, and runs a courſe of 40 leagues. The iſland, for the better adminiſtering of juſtice, is divided into juriſdictions: the firſt, called *Panay*, contains all that lies between Cape Potol and Bulacabi; the reſt of the iſland is ſubject to the alcayde of Otton, who reſides at Iloilo, a point of land running out into the ſea, on the ſouth ſide, between the two rivers of Tig Bavan and Jaro, and, with the iſland Imaras, forms a ſtrait not above half a league over, or rather an open harbour. On this point the governor Don Gonzalo Ronquillo cauſed a fort to be built in the year 1681. The iſland contains about 16,360 tributary Indians, partly belonging to the king and partly to particular encomienderos or lords; but they all pay in rice, the iſland producing 100,000 buſhels, Spaniſh meaſure, and but little other grain. The inhabitants are ſtout, luſty, and induſtrious farmers, and expert huntſmen, the country being full of wild boars and deer. The women make cloth of ſeveral colours. There are in the iſland 14 pariſhes, belonging to the fathers of the order of St Auguſtin, three benefices of ſecular prieſts, and formerly one college of the ſociety of Jeſus, where they adminiſter the ſacraments to the garriſon of Iloilo. Beſides the tributary Indians, there are here thoſe blacks the Spaniards call *Negrilloes*, who were the firſt inhabitants of the iſland, and afterwards driven into the thick woods by the Biſayas who conquered it. Their hair is not ſo ſtiff curled, nor are they ſo ſtout and ſtrong as the Guinea blacks. They live in the moſt uncouth parts of the mountains with their wives and children, all naked like beaſts. They are ſo ſwift that they often overtake wild boars and deer. They ſtay about the dead beaſt as long as it laſts; for they have no other ſubſiſtence but what they acquire with their bow and arrows. They fly from the Spaniards, not ſo much through hatred as from fear. Among the iſlands about Panay lies Imaras, oppoſite to Iloilo, and about a quarter of a league diſtant. It is long and low, ten leagues in compaſs and three in length, the ſoil fertile, abounding in ſarſaparilla, and exceeding good water. On the mountains there are wild boars, deer, and good timber. It has alſo in it the port of St Anne, three leagues from Iloilo.

Modern Un. Hiſt. vol. viii.

Panay, Pancarpus.

PANCARPUS, in Roman antiquity, a kind of ſhow which the Roman emperors frequently exhibited to the people. The word is formed from the Greek παν, *all*, and καρπος, *fruit*. Whence the name was alſo given by the Athenians to a ſacrifice wherein all kinds of fruits were offered. In this ſpectacle, the circus being all ſet over with large trees, repreſented a foreſt, into which the beaſts being let from the dens under ground, the people, at a ſign given by the emperor, purſued, ſhot, and killed all they could lay hold of, which they afterwards carried away, to regale upon at home. The beaſts uſually given on theſe occaſions were boars, deer, oxen, and ſheep.

Caſaubon, Cujas, Pithou, &c. make the pancarpus and ſylva the ſame thing; Salmaſius will have them different. The ſylva, according to him, was ſuch a diverſion as that above deſcribed: but the pancarpus a combat, wherein robuſt people, hired for that purpoſe, fought

Pancras || Pandects.

fought with wild beasts: which opinion he confirms from Cassian, Justinian, Claudian, Firmicus, Manilius, and Cassiodorus.

PANCRAS, a town of England, in the county of Middlesex, on the north-west side of London, and in the highway to Kentish town. Its church is one of the prebends of St Paul's, of which cathedral some call it the mother, it being thought to be as old as that church even in the reign of Queen Elizabeth, when it is represented as weather-beaten and standing alone, without any company, though it had formerly many buildings about it. A veterinary college was established here in 1791, for the improvement of farriery, and the treatment of cattle in general.

PANCRATIUM (compounded of παν, *all*, and κρατιω *I overcome*), among the ancients, a kind of intermixed exercise, consisting of the lucta or wrestling, and the boxing or pugilate: but it differs in this, that as the athletæ are not to seize the body, their hands are not armed with gauntlets, and give less dangerous blows.

The *pancratium* was the third gymnastic exercise, and was not introduced till long after the others. The people who were engaged in these exercises were called *pancratiastæ*; which name was also given to such as did not confine themselves to one exercise, but succeeded in several different ones.

Barthelemi, in his Travels of Anacharsis, gives us a short account of one of those at which he supposes him to have been present, in these words: "The action was soon terminated: a Sicyonian named *Sostratus*, a champion celebrated for the number of prizes he had won, and the strength and skill which had procured them, had arrived the preceding day. The greater part of the combatants yielded up all pretensions to the crown as soon as he appeared, and the others on the first trial; for in those preliminary essays, in which the athletæ try their strength by taking each others hands, he squeezed and twisted the fingers of his adversaries with such violence as instantly to decide the victory in his favour."

Anacharsis, vol. iii.

PANCREAS. See ANATOMY *Index*.

PANDA, in *Mythology*, a goddess who was invoked and honoured as the protectress of travellers and navigators. The goddess of peace was also called *Pandar*, because she opened the gates of cities which were shut in time of war. According to Varro, Panda is a surname of Ceres, derived *à pane dando*, because she gave bread to mankind.

PANDATARIA (Suetonius, Pliny, Strabo); PANDATERIA (Mela, Tacitus): An island in the Tuscan sea: a place of banishment for the more illustrious exiles. Hither Julia, the daughter of Augustus, was banished for her incontinence. To this island Tiberius banished Agrippina, his daughter-in-law (Suetonius.) It was the place of confinement of Octavia the daughter of Clodius, married to Nero; a sight that affected every eye (Tacitus). Now *Santa Maria*, situated between Pontia and Ischia (Holstenius).

PANDECTS, PANDECTÆ, in jurisprudence, the digest or collection, made by Justinian's order, of 534 decisions or judgements of the ancient lawyers, on so many questions occurring in the civil law; to which that emperor gave the force and authority of law, by the epistle prefixed to them.—The word is Greek, Παυδεκται, compounded of παν, "all," and δεχομαι, *capio*, "I take;" i. e. a compilation, or a book containing all things. Though others, as Bartoli, will have it formed from παν, and δεχομαι; as if these books contained the whole doctrine of the civil law.

Pandects || Pandosia.

The Pandects consist of 50 books, and make the first part of the body of the civil law.

They were denoted by two ππ; but the copyists taking those ππ for ff, the custom arose of quoting them by ff.

In the year 1137, the Pandects of Justinian, which had been brought by an Amalfitan merchant from the east, fell into the hands of the Pisans. Angelus Politianus believes this copy to be that which had been compiled by order of the emperor. However that be, it is certain that all other copies are taken from it, as being the most ancient. The Pisans having obtained their request from the emperor, carried the volumes to Pisa, and for near three centuries they were known by the name of the *Pandectæ Pisanæ*. But, about the year 1416, Pisa being taken by the Florentines, they were transported from thence to Florence, where they are now preserved in the library of the Medici, and known by the name of the *Pandectæ Florentinæ*. Some authors allege, that Lotharius ordained by an edict that the Pandects should be publicly read and explained at Bologna, and pleaded in the tribunals; but Corringius and Lindenbrogius fully refute their opinion.

Papias extends the denomination of *Pandects* to the Old and New Testament.

There are also PANDECTA *Medicinæ*, "Pandects of Medicine;" a kind of dictionary of things relating to medicine, compiled by Mat. Sylvaticus of Mantua, who lived about the year 1297. Leunclavius has published *Pandects of Turkey*; and Bishop Beveridge, *Pandectæ canonum*.

PANDICULATION, a stretching; or that violent and extensive motion of the solids, which usually accompanies the act of yawning.

PANDORA, in fabulous history, a woman formed by Prometheus, to whom each of the gods gave some perfection. Venus bestowed upon her beauty; Pallas, wisdom; Juno, riches; Apollo, music; and Mercury, eloquence: but Jupiter being displeased at Prometheus for having stolen fire from heaven to animate the mass he had formed, gave Pandora a box, which she was ordered not to open; and then sent her to the earth with this box, in which were enclosed age, diseases, pestilence, war, famine, envy, discord, and all the evils and vices that could afflict mankind. This fatal box was opened by Epimetheus, Prometheus's brother, when instantly all the diseases and mischiefs with which it was filled spread over the earth, and Hope only remained at the bottom. Hesiod says she was the first woman.

PANDOURS, are Hungarian infantry: they wear a loose garment fixed tight to their bodies by a girdle, with great sleeves, and large breeches hanging down to their ankles. They use fire-arms, and are excellent marksmen: they have also a kind of sabre near four feet long, which they use with great dexterity.

PANDOSIA (Livy, Justin, Strabo), an inland town of the Bruttii, and a place of strength on the river Acheron, where Alexander of Epirus, deceived by the oracle of Dodona, met his fate and perished. Now *Mendicino* (Holstenius). Another of Epirus (Strabo); situated

Pandura || Panel.

situated on the river Acheron (Livy); which Alexander of Epirus was advised to avoid as fatal, but which he met with in Italy. This last is said to have been the residence of the Oenotrian kings (Strabo).

PANDURA, or PANDORON, a musical instrument, used among the ancients, resembling the lute. The word is said to be formed from the Greek παν and δωρον, i. e. "all gifts, all sorts of gifts." Isidore derives the name from its inventor *Pandorus*; others from *Pan*, to whom they attribute its invention, as well as that of the flute. It has the same number of strings with the lute; but they are of brass, and of consequence give a more agreeable sound than those of the lute. Its frets are of copper, like those of the cistre; its back is flat, like that of the guitar; and the rims of its table, as well as its ribs, are cut in semicircles. Du Cange observes, that Varro, Isidore, and others of the ancients, mention it as having only three strings; whence it is sometimes also spoken of under the denomination τριχορδον, *trichordum*.

PANEAS (Pliny, Josephus): the apparent spring from which the Jordan rises, on the extremity of the west side of the Trachonitis (Pliny).

PANEAS (Coins, Pliny, Josephus), the name of a district adjoining to the spring *Paneas*, with a cognominal town, either enlarged and adorned, or originally built, by Philip son of Herod, and called *Cæsarea* by Josephus, and in St Matthew, *Cæsarea of Philip*; with a temple erected to Augustus his benefactor, who conferred the Trachonitis upon him (Coin). It was afterwards called *Neronias*, in honour of Nero (Josephus).

PANEGYRIC, an oration in praise of some extraordinary thing, person, or virtue.

The name is Greek, πανηγυρις; formed of παν, "all," and αγειρω, "I assemble;" because anciently held in public and solemn assemblies of the Greeks, either at their games, their feasts, fairs, or religious meetings.

To make their panegyrics the more solemn, the Greeks used to begin with the praises of the deity in whose honour the games, &c. were celebrated; then they descended to the praise of the people or country where they were celebrated; then to the princes or magistrates who presided at them; and at length to the champions, especially the conquerors, who had gained the prizes in them.

PANEGYRICUM, in church history, an ecclesiastical book, used by the Greek church, containing the panegyrical orations of various authors, on the solemnities of Jesus Christ and the saints. It is found in MS. in most churches, but it is not the same in all; each church having its particular saints; and the compilers of this kind of books usually suited their collections to the taste of their own devotion. They are disposed according to the order of the months, and frequently consist of 12 volumes, answering to the 12 months of the year.

Among the principal authors of this work are Athanasius, Cyril, Basil, Chrysostom, &c.

PANEL (*Panella*, *Panellum*), according to Sir Edward Coke, denotes "a little part;" but the learned Spelman says, that it signifies *schedula vel pagina*, "a schedule or roll;" as a panel of parchment, or a counterpane of an indenture: but it is used more particularly for a schedule or roll, containing the names of such jurors as the sheriff returns to pass upon any trial. And the *impanelling* a jury is the entering their names in a panel or little schedule of parchment.

Panel || Panini.

PANEL, in *Scots Law*, signifies the prisoner at the bar, or person who takes his trial before the court of justiciary for some crime.

PANGOLIN, a species of the manis peculiar to Hindostan. See MANIS, MAMMALIA *Index*.

PANIC, denotes an ill-grounded terror or fright. Polyænus says, it originates from *Pan*, one of the captains of Bacchus, who with a few men put a numerous enemy to rout, by a noise which his soldiers raised in a rocky valley, favoured with a great number of echoes. This stratagem making their number appear far greater than it was, the enemy quitted a very commodious encampment, and fled. Hence all ill-grounded fears have been called *panics*, or *panic fears*; and it was this that gave occasion to the fable of the nymph Echo's being beloved by the god Pan. Others derive the origin of it hence: that in the wars of the Titans against the gods, Pan was the first who struck terror into the hearts of the giants. Theon on Aratus says, he did it by the means of a sea shell, which served him for a trumpet, whereof he was the inventor.

PANICLE, in *Botany*, denotes a soft woolly beard, on which the seeds of some plants hang pendulous; as in millet, reeds, and hay.

PANICUM, a genus of plants belonging to the triandria class. See BOTANY *Index*.

PANINI, PAOLO, a painter of perspective and architecture. He was born at Placentia in 1691, with a most happy genius to painting, which he cultivated by studying at Rome, where he designed every vestige of ancient magnificence, the ruins of superb Roman edifices, cenotaphs, columns, baths, arches, and obelisks, as also some of the most entire buildings, the ornaments of modern Rome.

He studied the works of Ghisolfi with peculiar pleasure; he formed his taste, style, and manner, by the compositions of that esteemed artist; and his strongest ambition was to imitate him; so that he soon became eminent in that style beyond all his cotemporaries. His composition is rich; the truth of his perspective is critically exact; and his paintings are universally esteemed for the grandeur of the architecture, for the clearness of his colouring, for the beautiful figures which he generally introduced, and also for the elegant taste with which he disposed them. He always designed them correctly, and set them off with suitable attitudes and expression.

However, this description of his merit must be supposed to allude to his early and prime performances; for in his latter time, his pictures were distinguishable by a free and broad touch, but they are feeble in their colouring and effect. At all times, indeed, he was too apt to design his figures rather too large for the architecture, which diminished the grandeur of the most magnificent parts of his composition, and was quite contrary to the practice of Ghisolfi; whose works must perpetually afford a pleasing deception to the eye, by the perspective proportions observed between the figures, buildings, and distances.

At Rivoli, a pleasure house belonging to the king of Sardinia, there are several of Panini's paintings, which are views of that fine retreat and its environs. They are beautifully coloured, well handled, and with a touch

full

Panionia, Pannaria.

full of ſpirit; though in ſome parts the yellow ſeems a little too predominant, and the lights are not always diſtributed in ſuch a manner as to produce the moſt ſtriking effect.

PANIONIA, in antiquity, a feſtival celebrated in honour of Neptune by a concourſe of people from all the cities of Ionia. It is remarkable in this feſtival, that if the bull offered in ſacrifice happened to bellow, it was accounted an omen of divine favour; becauſe that ſound was thought to be acceptable to Neptune.

PANNARIA, one of the Lipari iſlands. See LIPARA and LIPARI.—The ancients called it *Thermiſſa*, from the hot waters which they found in it. It may be about eight or nine miles in circumference. It bears wheat, and grapes from which the inhabitants make wine. Pannaria, like the other adjacent iſlands, appears to be a volcano; its original having been deſtroyed by continued eruptions. It is now no longer of a conical figure. It contains about 100 inhabitants, reckoning every ſoul, men, women, and children. It is, like Stromboli, governed by a curate, who depends on the prieſt of the pariſh of St Joſeph in Lipari; and when any couple in the iſland determine to marry, they muſt croſs the ſea to Lipari to receive the nuptial benediction in the pariſh of St Joſeph, or pay a ſum for a licenſe to empower the curate of Pannaria to perform the ceremony. All the other adjoining iſlands are ſubject to the ſame regulation.

The inhabitants of Pannaria live by fiſhing, and by taking ſmall quantities of game on this and the little contiguous iſlands. They bring up and tame thoſe birds known by the name of *gulls*, which are ſeen in tempeſtuous weather flying near the ſurface of the ſea. They are here called *corracio*. The body of the bird and the tips of its wings are white; but the head, the tail, and the reſt of the wings, are gray: they are of the ſize of Indian hens; their wings are prodigiouſly large: they have their neſts on the ſteep inacceſſible cliffs of the ſeveral iſlands. When the iſlanders bring theſe birds up tame, they feed them with fiſh, which, though of ſuch ſize that you would think it impoſſible for their ſtomachs to receive them, they eagerly ſtretch their necks and ſwallow rapaciouſly. Theſe birds are thus brought up to be as tame as pullets or pigeons; and ſuch an attachment do they often acquire to the places in which they are reared, that ſome of them have been known to return to theſe iſlands after being conveyed to Mellazzo and Meſſina.

On the ſummit of a hill in this iſland, which projects over the ſea, the inhabitants pretend to ſhow a caſtle and an inſcription. But their caſtle is only an elevated peak of the rock, which nature ſeems to have prepared as a retreat for birds. It conſiſts of puzzol[illegible]; and has been actually formed by the action of winds and rains, for a long courſe of time, into a fantaſtic figure, which may appear, when careleſsly viewed from a diſtance by an undiſtinguiſhing eye, the remains of ſome ancient ſtructure. The good people of the iſland, not being able to judge of it otherwiſe than from appearance, are perſuaded, that it can be nothing but a caſtle, which muſt have been reared for the defence of the iſland againſt the Turks and the corſairs of Barbary. Theſe they conſider as the moſt dreadful ſcourge with which mankind can poſſibly be afflicted, and fear them much more than the eruptions of the volcano. When they feel their iſland ſhaken, they embark with all their wealth, which a ſingle ſloop eaſily contains; and on board they are ſafe from both the ſhaking of the earth and the eruptions of the lava, but not from an hoſtile fleet. Pannaria ‖ Panormus.

In this iſland there appear various remains of ancient buildings, but very ruinous and very ſcanty. In ploughing the fields, many remains of ſepulchres, in different modes of conſtruction, are found; ſome of rough ſtones, tiles, or bricks; others conſiſting each of a ſingle ſtone. Vaſes of various ſorts and ſizes are alſo ſaid to have been found in the ſame fields, utenſils of different kinds, money, chains, and medals of lead. But none of theſe relicks of antiquity have been preſerved: the good people who found them were ignorant of their value, and therefore neglected them as trifles. In places along the ſhore of the iſland, where the ſea appears to have encroached, there are ſome hewn ſtones to be ſeen: they ſeem to be remains of walls, which muſt have been very ſtrong and of elegant architecture. In other places farther diſtant from the ſhore, there likewiſe appear fragments of walls ſunk in the ground, and apparently overwhelmed with mud, which the winds and rains have brought down from the mountain above. Theſe remains ſhow, that Pannaria, either under the Greeks, or in that period when all the elements were taxed for the gratification of Roman luxury, muſt have been adorned with ſuperb buildings, as well as the adjacent iſlands of Lipari, Stromboli, and Baſiluzzo.

PANNELS *of a* SADDLE, are two cuſhions or bolſters, filled with cows, deer, or horſes hair, and placed under the ſaddle, on each ſide, to prevent the bows and bands from galling the horſe.

PANNICULUS CARNOSUS, in *Comparative Anatomy*, a robuſt fleſhy tunic, ſituated in beaſts between the ſkin and the fat; by means of which they can move their ſkin in whole or in part. It is altogether wanting in mankind.

PANNONIA (Pliny, Strabo, Dio), an extenſive country of Europe, having the Danube on the north, Dalmatia on the ſouth, Noricum on the weſt, and Moeſia on the eaſt. It is divided into *Superior* and *Inferior* (Ptolemy, Dio). The common boundary between both were the river Arabo and Mount Ceſius, having the Superior to the weſt, and the Inferior on the eaſt ſide. This diviſion is thought to be no older than the times of the Antonines. *Pannonicus* the epithet (Martial).

PANOMPHÆUS, in antiquity, a deſignation given to Jupiter, becauſe he was ſaid to be the original author of all ſorts of divination, having the books of fate, and out of them revealing either more or leſs, as he pleaſed, to inferior demons.

PANOPOLIS. See ACHMIM.

PANORMUS (Polybius, Pauſanias), a town of Achaia, in Peloponneſus, near the promontory Rhium.—Another (Ptolemy, Pliny), a town on the north ſide of Crete.—A third (Ptolemy), in Macedonia, on the Ægean ſea, near Mount Athos.—A fourth, of Samos (Livy).—A fifth, of Sicily; an ancient city, built by the Phœnicians (Thucydides); a principal town of the Carthaginians (Polybius); ſituated between Lilybæus and Pelorus (Mela); a Roman colony. Now *Palermo*, capital of the iſland, on the north ſide. E. Long. 13.

N.

Panormus ‖ Pantaloon.

N. Lat. 38. 30.—A ſixth Panormus of the Thracian Cherſoneſus, placed by Pliny on the weſt ſide of the peninſula, and mentioned by no other writer.

PANORMUS (Ptolemy), a port of Attica; its name denoting it to be capacious.—Another, of Epirus (Strabo, Ptolemy); a large harbour in the heart of the Montes Ceraunii, below the citadel Chimæra.—A third of Ionia (Strabo); near Epheſus, with the temple of the Epheſian Diana.

PANORPA, the SCORPION FLY, a genus of inſects belonging to the order of neuroptera. See ENTOMOLOGY *Index*.

PANTALARIA, an iſland in the Mediterranean ſea, between Sicily and the main land of Africa, about 17 miles in circumference. It is near the coaſt of Tunis, and abounds in cotton, fruits, and wind; but the inhabitants are obliged to bring all their corn to Sicily, as it belongs to the king of the two Sicilies. E. Long. 12. 25. N. Lat. 36. 55.

PANTÆNUS, a Stoic philoſopher, born in Sicily (though ſome have erroneouſly ſuppoſed him to be a Hebrew) about the beginning of the reign of Commodus. He preſided over the celebrated ſchool of Alexandria, where, from the time of St Mark, the founder of that church, they had always a divine that was eminent for his learning and piety, to explain the Holy Scriptures, and to inſtruct them in human learning. This employment he was obliged to leave; for when the Indians required of Demetrius biſhop of Alexandria to ſend them one to inſtruct them in Chriſtianity, he ſent Pantænus, who undertook the miſſion with joy, and behaved himſelf very properly in it. We are told, that the Indians had been tinctured with Chriſtianity by St Bartholomew the apoſtle; and that Pantænus met with the Hebrew original of St Matthew's goſpel, which the apoſtle had left there. St Jerome ſays that Pantænus brought it with him; and that it was, in his time, preſerved in the library of Alexandria. But we ſuſpect St Jerome to be miſtaken in this reſpect. When Pantænus returned to Alexandria, he reaſſumed the government of the ſchool of that city, which, it is probable, he had, during his abſence, committed to the care of St Clement, a preſbyter of Alexandria. He explained the Scriptures publicly, under the reign of Severus Antoninus Caracalla; and was, in St Jerome's opinion, more ſerviceable to the church by his diſcourſes than by his writings. He publiſhed ſome commentaries upon the Bible, which are loſt. "That the prophets often expreſs themſelves in indifferent terms, and that they make uſe of the preſent time inſtead of the paſt and future," is a rule of Pantænus, which has been followed by all ſucceeding interpreters. Theodorus has related this rule; but he ſpeaks of it as if Pantænus had rather ſaid than written it.

We may have ſome notion of Pantænus's manner of explaining the Scriptures by the like performances of St Clement of Alexandria, Origen, and others who were brought up in that ſchool.

PANTALOON, a ſort of garment conſiſting of breeches and ſtockings of one piece; ſaid to have been firſt introduced by the Venetians.

PANTALOON, on the theatre, is a buffoon or maſked perſon, who performs high and groteſque dances, and ſhows violent and extravagant poſtures and airs. The word is likewiſe uſed for the habit or dreſs theſe buffoons uſually wear; which is made preciſely to the form of their body, and all of a piece from head to foot. Panthea, Pantheiſm.

And hence thoſe who wear a habit of this kind, for conveniency, under their other clothes, are called *pantaloons* of Venice.

PANTHEA, in antiquity, were ſingle ſtatues, compoſed of the figures, or ſymbols, of ſeveral different divinities together. Father Joubert, who calls them *pantheæ*, and who has remarked them ſometimes on medals, ſays their heads are moſt commonly adorned with the ſymbols or attributes belonging to ſeveral gods. An inſtance of this appears in a medal of Antoninus Pius; which repreſents Serapis by the buſhel it bears; the Sun by the crown of rays; Jupiter Ammon by the ram's horns; Pluto by the large beard; and Æſculapius by the ſerpent twiſted in his hand. M. Baudelot, in a diſſertation on the Lares, obſerves, that the *panthea* had their origin from the ſuperſtition of thoſe, who, taking ſeveral gods for the protectors of their houſes, united them all in the ſame ſtatue, by adorning it with the ſeveral ſymbols proper to each of theſe deities.

PANTHEISM, a philoſophical ſpecies of idolatry leading to atheiſm, in which the univerſe was conſidered as the ſupreme God. Who was the inventor of this abſurd ſyſtem, is, perhaps, not known; but it was of early origin, and differently modified by different philoſophers. Some held the univerſe to be one immenſe animal, of which the incorporeal ſoul was properly their God, and the heavens and earth the body of that God; whilſt others held but one ſubſtance, partly active and partly paſſive; and therefore looked upon the viſible univerſe as the only *Numen*. The earlieſt Grecian Pantheiſt of whom we read was Orpheus, who called the world *the body of God*, and its ſeveral parts *his members*, making the whole univerſe one *divine animal*. According to Cudworth, Orpheus and his followers believed in the immaterial ſoul of the world; therein agreeing with Ariſtotle, who certainly held that God and matter are coeternal; and that there is ſome ſuch union between them as ſubſiſts between the ſouls and bodies of men. See METAPHYSICS, N° 264.

In the ancient Orphic theology, we are taught, that "this univerſe, and all things belonging to it, were made *within* God; that all things are contained together in the *womb* of God; that God is the *head* and *middle* of all things; that he is the *baſis* of the *earth* and *heaven*; that he is the *depth of the ſea*, the *air* we breathe, the force of the untamcable *fire*; that he is the *ſun*, *moon*, and *ſtars*; that there is one divine *body*; for,

Παντα γαρ εν μεγαλω τα δε σωματι κειται·

"all theſe things lie in the great body of God."—But further, to prove that the moſt ancient Greek philoſophers reſolved all things into God, and made God *all*, we ſhall cite a moſt remarkable paſſage from Plutarch's Defect of Oracles. "Whereas there are two cauſes of all generations, the divine and the human, the moſt ancient theologers and poets attended only to the more excellent of theſe two; reſolving all things into God, and pronouncing this of them univerſally;

Ζευς αρχη, Ζευς μεσσα, Διος δ' εκ παντα πελονται·

'that God is both the beginning and middle, and that all things are out of God;' inſomuch, that they had no regard

Pantheon. regard at all to the other natural and neceſſary cauſes of things: but on the contrary, their juniors, who were called *naturaliſts*, deviating from this moſt excellent and divine principle, placed all in *bodies*, their paſſions, colliſions, mutations, and commixtures."

That by the moſt ancient theologers here mentioned, Plutarch meant Orpheus and his immediate followers, is plain from the Orphic verſe by which he proves their antiquity. By their juniors, whom he calls *naturaliſts*, he could mean no other than the firſt Grecian philoſophers, *Anaximander*, *Anaximenes*, and *Hippo*, who were followed by the atheiſtical atomiſts, *Leucippus*, *Democritus*, *Protagoras*, and *Epicurus*. But with reſpect to the univerſe being God, and all things divine and human being modifications of mere matter, the ſtoics undoubtedly agreed with Anaximander and his followers; for the ſchool of Zeno held but one ſubſtance. See METAPHYSICS, N° 265. This impious doctrine, that all things are God, and that there is but one ſubſtance, was revived in modern times by Spinoza, an apoſtate Jew. As we ſhall give a life of him and a view of his principles, we muſt refer the reader for a fuller account of Pantheiſm to SPINOZA. See alſo PAN.

PANTHEON, a beautiful edifice at Rome, anciently a temple, dedicated to all the gods; but now converted into a church, and dedicated to the Virgin and all the martyrs.

This edifice is generally thought to have been built by Agrippa ſon-in-law to Auguſtus, becauſe it has the following inſcription on the frieze of the portico.

M. AGRIPPA L. F. COS. TERTIUM FECIT.

Several antiquarians and artiſts, however, have ſuppoſed that the pantheon exiſted in the times of the commonwealth; and that it was only embelliſhed by Agrippa, who added the portico. Be this as it will, however, the pantheon, when perfected by Agrippa, was an exceedingly magnificent building; the form of whoſe body is round or cylindrical, and its roof or dome is ſpherical: it is 144 feet diameter within; and the height of it, from the pavement to the grand aperture on its top, through which it receives the light, is juſt as much. It is of the Corinthian order. The inner circumference is divided into ſeven grand niches, wrought in the thickneſs of the wall: ſix of which are flat at the top; but the ſeventh, oppoſite to the entrance, is arched. Before each niche are two columns of antique yellow marble fluted, and of one entire block, making in all 14, the fineſt in Rome. The whole wall of the temple, as high as the grand cornice incluſive, is caſed with divers ſorts of precious marble in compartments. The frieze is entirely of porphyry. Above the grand cornice ariſes an attic, in which were wrought, at equal diſtances, 14 oblong ſquare niches: between each niche were four marble pilaſters, and between the pilaſters marble tables of various kinds. This attic had a complete entablature; but the cornice projected leſs than that of the grand order below. Immediately from the cornice ſprings the ſpherical roof, divided by bands, which croſs each other like the meridians and parallels of an artificial terreſtrial globe. The ſpaces between the bands decreaſe in ſize as they approach the top of the roof; to which, however, they do not reach, there being a conſiderable plain ſpace between them and the great opening. That ſo bold a roof might be as light as poſſible, the architect formed the ſubſtance of the ſpaces between the bands of nothing but lime and pumice-ſtones. The walls below were decorated with lead and braſs, and works of carved ſilver over them; and the roof was covered on the outſide with plates of gilded bronze. There was an aſcent from the ſpringing of the roof to the very ſummit by a flight of ſeven ſtairs. And if certain authors may be credited, theſe ſtairs were ornamented with pedeſtrian ſtatues ranged as an amphitheatre. This notion was founded on a paſſage of Pliny, who ſays, "That Diogenes the ſculptor decorated the pantheon of Agrippa with elegant ſtatues; yet that it was difficult to judge of their merit, upon account of their elevated ſituation." The portico is compoſed of 16 columns of granite, four feet in diameter, eight of which ſtand in front, with an equal intercolumniation all along, contrary to the rule of Vitruvius, who is for having the ſpace anſwering to the door of a temple, wider than the reſt. Of theſe columns is a pediment, whoſe tympanum, or flat, was ornamented with bas-reliefs in braſs; the croſs beams which formed the cieling of the portico were covered with the ſame metal, and ſo were the doors. The aſcent up to the portico was by eight or nine ſteps. Pantheon.

Such was the pantheon, the richneſs of which induced Pliny to rank it among the wonders of the world.

The eruption of Veſuvius, in the reign of Tiberius, damaged the Pantheon very conſiderably: it was repaired by Domitian; which occaſioned ſome writers to mention that prince as the founder of the building. The emperor Adrian alſo did ſomething to it. But it appears, that the pantheon is more indebted to Septimius Severus, than to any one ſince its erection. The moſt, perhaps, that any of his predeceſſors had done, was the adding ſome ornament to it: Septimius beſtowed eſſential reparations upon it. The following inſcription appears upon the architrave:

IMP. CAES. SEPTIMIVS. SEVERVS.
PIVS. PERTINAX.
ARABICVS. PARTHICVS. PONTIF.
MAX. TRIB. POT.
XI. COS. III. P. P. ET. IMP. CAES.
MARCVS.
AVRELIVS. ANTONINVS. PIVS.
FELIX. AVG. TRIB.
POT. V. COS. PROCOS. PANTHEVM.
VETVSTATE.
OBRVPTVM. CVM. OMNI. CVLTV.
RESTITVERVNT.

It is really a matter of aſtoniſhment, that a ſtructure, which, granting it to have been built by Agrippa, was not more than 200 years old, ſhould have fallen into decay through age. This ſingle conſideration ſeems ſufficient to confirm the opinion of thoſe who believe it to have ſtood in the times of the commonwealth.

The temple ſubſiſted in all its grandeur till the incurſion of Alaric in the time of Honorius. Zozymus relates, that the Romans having engaged to furniſh this barbarian prince with 3000 pounds weight of gold and 5000 pounds weight of ſilver, upon condition that he ſhould depart from their walls; and it proving impoſſible to raiſe thoſe ſums either out of the public treaſury or private purſes, they were obliged to ſtrip the tem-

Pantheon. ples of their ſtatues and ornaments of gold and ſilver. It is probable that the pantheon ſupplied a good part, as that of Jupiter Capitolinus was the only one in Rome that could vie with it for riches.

Alaric carried off nothing from the Romans beſides their precious metals. Thirty-nine years after this, Genſeric king of the Vandals took away part of their marbles; and whether from a greedineſs of plunder, or from a reliſh of the productions of art, loaded one of his ſhips with ſtatues. It cannot be queſtioned, but that on this occaſion the pantheon was forced to part with more of its ornaments, and that the ineſtimable works of Diogenes became the prey of this barbarian.

Before theſe unwelcome viſits of the Goths and Vandals, the Chriſtian emperors had iſſued edicts for demoliſhing the Pagan temples. But the Romans, whatever were their motives, ſpared the pantheon, which is known to have ſuffered no damage from the zeal of the pontiffs, or the indignation of the ſaints, before the firſt ſiege of Rome by Alaric. It remained ſo rich till about the year 655, as to excite the avarice of Conſtantine II. who came from Conſtantinople to pillage the pantheon, and executed his purpoſe ſo far as to ſtrip it both of its inſide and outſide brazen coverings, which he tranſported to Syracuſe, where they ſoon after fell into the hands of the Saracens.

About fifty years before this, pope Boniface IV. had obtained the pantheon of the emperor Phocas, to make a church of it. The artiſts of theſe days were totally ignorant of the excellence of the Greek and Roman architecture, and ſpoiled every thing they laid their hands upon. To this period certain alterations are to be referred, of which we ſhall ſpeak by and by.

After the devaſtations of the barbarians, Rome was contracted within a narrow compaſs: the ſeven hills were abandoned; and the Campus Martius, being an even plain, and near the Tyber, became the ground-plat of the whole city. The pantheon happening to ſtand at the entrance of the Campus Martius, was preſently ſurrounded with houſes, which ſpoiled the fine proſpect of it; and it was yet more deplorably diſgraced by ſome of them which ſtood cloſe to its walls. Pedlars ſheds were built even within its portico, and the intercolumniations were bricked up, to the irreparable damage of the matchleſs pillars, of which ſome loſt part of their capitals, ſome of their baſes, and others were chiſſeled out ſix or ſeven inches deep, and as many feet high, to let in poſts. Which excavations are to this day half filled up with brick and mortar; a ſad monument of the licentiouſneſs of the vulgar, and of the ſtupid avarice of thoſe who ſold them the privilege to ruin the nobleſt piece of art in the world!

This diſorder continued till the pontificate of Eugene IV. whoſe zeal for the decency of a conſecrated place, prevailed upon him to have all the houſes cleared away that encumbered the pantheon, and ſo the miſerable barracks in the portico were knocked down.

From the time Conſtantius carried off the braſs plating of the external roof, that part was expoſed to the injuries of the weather, or at beſt was but ſlightly tiled in, till Benedict II. covered it with lead, which Nicholas V. renewed in a better ſtyle.

It does not appear that from this time to Urban VIII. any pope did any thing remarkable to the pantheon. Pantheon.

Raphael Urban, who had no equal as a painter, and who as an architect had no ſuperior, left a conſiderable ſum by his will for the reparation of the pantheon, where his tomb is placed. Perino de la Vagua, Jacomo Udino, Hannibal Carracci, Flamingo Vacca, and the celebrated Archangelo Corelli, did the ſame. All the ornaments within, that have any claim to be called good, are of the later times; the paintings merit eſteem; and the ſtatues, though not maſterpieces, do honour to ſculpture, which alone is a proof that they are poſterior to the 15th century.

But, with all the reſpect due to a pontiff, who was otherwiſe a protector, and even a practiſer of the arts, it were much to be wiſhed that Urban VIII. had not known that the pantheon exiſted. The inſcriptions cut at the ſide of the door inform us, that he repaired it; yet, at the ſame time that he built up with one hand, he pulled down with the other. He cauſed two belfries of a wretched taſte to be erected on the ancient front work, and he diveſted the portico of all the remains of its ancient grandeur, *viz.* the brazen coverture of the croſs beams, which amounted to ſuch a prodigious quantity, that not only the vaſt baldaquin or canopy of the confeſſional in St Peter's was caſt out of it, but likewiſe a great number of cannon for the caſtle of St Angelo. This pope, who was of the family of Barberini, preſented alſo as much of this metal to his nephew, as was ſufficient for the decoration of his new palace; on which occaſion this remarkable paſquinade was ſtuck up:

Quod non fecerunt Barbari fecere Barberini.

If ever gingle added force to wit, it was certainly in this inſtance.

It is ſurpriſing, that whilſt all theſe operations were carrying on in the portico, he never once thought of repairing the damages which time had wrought in it! Of the 16 pillars which ſupported this magnificent pile, there were no more than 13 left; the three next the temple of Minerva had diſappeared; with theſe the entablature and an angle of the front had tumbled down. There were not wanting in Rome fragments enough of antique columns that might have been put together, and ſet up, to have prevented the downfall of a pile which deſerved to ſtand as long as the world endured.

Alexander VII. did what Urban VIII. had neglected to do. At the ſame time that Bernini was conſtructing the colonnade of St Peter, this pontiff ordered ſearch to be made for pillars to match thoſe of the portico of the pantheon; and ſome were found not far from the French church of St Lewis of the very ſame model. They were granite of the iſle of Ilva, or Elba, and thoſe of the portico were Egyptian granite; the colour, however, was the ſame, ſo that the effect was equal. The pope's zeal did not ſtop here; he cauſed all the old houſes before the portico to be pulled down, and the ſoil and rubbiſh to be cleared away which covered the ſteps, and even the baſes of ſome of the pillars. He began covering the roof with marble, and raiſed a lantern over the aperture, to keep out rain; but death took him off before his project was completed. Clement

Panther || Pantomime.

ment IX. his ſucceſſor, incloſed the portico within iron rails. Several later popes have added to its decorations, which were all in the taſte of the times they were done in; and the body of the edifice and its architecture gained nothing from them. The main object of their holineſſes liberality was the embelliſhment of the grand altar. One gave purple curtains, another beſtowed ſilver tabernacles; others again vaſes, and ſuperb dreſſes, ſuited to the ſolemn ceremonies of religion. All theſe might be called rich; but they had in no ſenſe a tendency to retrieve the ancient majeſty or original ſplendor of the temple. The true guſto of the ornaments was a little imitated at the revival of the arts. Good ſtatues took place of the ſkeletons and ſquat figures that ridiculouſly diſgraced the altars for the ſpace of eight centuries. The paintings of Perugino, Cozza, and Greſſi, covered the dull moſaics with which the Greeks of Conſtantinople had loaded the walls of moſt of the churches in Rome. The porphyry and the green and yellow antique found among the old ruins were employed to much advantage.

There was beſides at Rome another pantheon, dedicated to Minerva as the goddeſs of medicine. It was in the form of a decagon, and the diſtance from one angle to another meaſured about 22 feet and a half. Betyveen the angles there were nine round chapels, each of which was deſigned for a deity; and over the gate there was a ſtatue of Minerva. The pantheon of Athens was in many reſpects little inferior to the Roman one built by Agrippa. The Greek Chriſtians alſo converted it into a church, dedicated it to the Virgin, under the name of *Panegia;* and the Turks changed it into a moſque. The pantheon of Niſmes was a temple in that city, wherein were 12 niches for ſtatues, ſuppoſed to have been deſtined for the 12 great gods. In the Eſcurial is a moſt magnificent chapel, called *pantheon*, 35 feet in diameter, and 38 feet high from the pavement, which is compoſed of marble and jaſper inlayed. The whole inſide of the chapel is of black marble, except the luthern, and ſome ornaments of jaſper and red marble. In this chapel are depoſited the bodies of the kings and queens; there are only places for 26, and eight of them are already filled.

PANTHER. See FELIS, MAMMALIA *Index*.

PANTING, conſiſts in a rapid ſucceſſion of inſpirations and expirations, which happens when we run or perform any violent motion.

PANTOMIME, Παντομιμος, among the ancients, a perſon who could imitate all kind of actions and characters by ſigns and geſtures without ſpeaking.

The pantomimes made a part in the theatrical entertainments of the ancients; their chief employment was to expreſs, in geſtures and action, whatever the chorus ſung, changing their countenance and behaviour as the ſubject of the ſong varied. They were very ancient in Greece, being derived from the heroic times, according to ſome; but however this may be, they were certainly known in Plato's time. In Rome, it was ſo late as the time of Auguſtus before they made their appearance. As to their dreſs, it was various, being always ſuited as near as poſſible to that of the perſon they were to imitate. The crocota was much uſed among the Roman pantomimes, in which and other female dreſſes they perſonated women.

Panuco || Pap-caſtle.

We have this account of them in Gibbon's hiſtory: "The pantomimes (A), who maintained their reputation from the age of Auguſtus to the ſixth century, expreſſed, without the uſe of words, the various fables of the gods and heroes of antiquity; and the perfection of their art, which ſometimes diſarmed the gravity of the philoſopher, always excited the applauſe and wonder of the people. The vaſt and magnificent theatres of Rome were filled by 3000 female dancers, and by 3000 ſingers, with the maſters of the reſpective choruſſes. Such was the popular favour which they enjoyed, that in a time of ſcarcity, when all ſtrangers were baniſhed from the city, the merit of contributing to the public pleaſures exempted them from a law which was ſtrictly executed againſt the profeſſors of the liberal arts (B)."

Pantomimes are ſtill very common in England: they differ indeed in ſome reſpects from thoſe of antiquity; but they retain the name, and like theſe they conſiſt in the repreſentations of things merely by geſtures.

PANUCO, a town and province of North America, in New Spain, lying to the north of Mexico, with a biſhop's ſee. There are veins of gold, and ſalt works, which are the principal revenue of the inhabitants.—It is ſeated near the mouth of a river of the ſame name, at a ſmall diſtance from the gulf of Mexico. W. Long. 100. 5. N. Lat. 24. 0.

PAO-TING-FOU, in China, where the viceroy reſides, is the moſt conſiderable city in the province next to Pekin. It has 20 others under its juriſdiction, three of the ſecond and 17 of the third claſs. The country around it is pleaſant, and inferior in fertility to no part of China. It is neceſſary to paſs this city in going from Pekin to the province of Chan-ſi.

PAOLO, MARCO. See PAULO.

PAPA, a ſmall but ſtrong town of Lower Hungary, in the county of Veſprin. It was taken from the Turks in 1683, after raiſing the ſiege of Vienna, and is ſubject to the houſe of Auſtria. It is ſeated on a mountain, near the river Marchaez, in E. Long. 18. 10. N. Lat. 47. 20.

PAP-CASTLE, in England, in Bridekirk pariſh, Cumberland, ſtood two miles from Cockermouth, on the other ſide of the Derwent, whoſe Roman antiquity is proved by ſeveral monuments; and a large green ſtone veſſel found here, with little images upon it, is ſuppoſed to

(A) "See the dialogue of Lucian, entitled, *De Saltatione*, tom. ii. p. 265—317. edit. Reitz. The pantomimes obtained the honourable name of χειροσοφοι; and it was required that they ſhould be converſant with almoſt every art and ſcience. Burette (in the *Memoires de l'Academie des Inſcriptions*, tom. i. p. 127, &c.) has given a ſhort hiſtory of the art of pantomimes.

(B) "Ammianus, l. xiv. c. 6. He complains, with decent indignation, that the ſtreets of Rome were filled with crowds of females, who might have given children to the ſtate, but whoſe only occupation was to curl and dreſs their hair; and *jactari volubilibus gyris, dum exprimunt innumera ſimulacra, quæ finxere fabulæ theatrales.*"

Pap-caſtle, Paper.

have been formerly a Daniſh font for dipping infants; and has been ſince uſed at Bridekirk in the neighbourhood for their ſprinkling.

The name of *Pap-caſtle* ſeems to be contracted from Pipard its owner: it is ſaid to have been demoliſhed, and the materials employed to build Cockermouth caſtle.

Mr Routh, in a letter to Mr Gale, thus deſcribes the ruins diſcovered at Pap-caſtle, Jan. 16. 1741.

Camden's Britannia, Gough's edit.

"I made particular inquiry of the man in whoſe grounds they were diſcovered, and of ſome of the neighbours preſent at the diſcovery. The cloſe in which they lay is a little to the ſouth of the fort, on the declivity of the hill to the river, and bounded on the weſt by a narrow lane, probably the *via militaris* continued; and is uſually ſhown to ſtrangers as the moſt remarkable here for finding Roman coins. They are the largeſt ruins ever known to be diſcovered in theſe parts: for they met with three walls beſides the pavement; the firſt lay eaſt and weſt, and was covered with earth near a foot high; parallel to it at ſeven yards, they found a ſecond; and between theſe two, about two yards deep (the height of the walls, which were ſix yards broad, and ſtrongly cemented), they came to a pavement curiouſly laid with large flags, three quarters of a yard ſquare, and two or three inches thick, as I meaſured them: but imagining there muſt be money under it, they covered it up till night, and then tore it all up. It was compoſed of flags of different thickneſs: under the thinner was a coarſe ſtrong cement, which cauſed them to be broken in taking up; but the thicker are pretty entire. Part of the wall ſtood on the floor, and the edge was ſecured by a fine red cement two inches thick, ſuppoſed to be intended to keep the floor dry. They imagined themſelves at the corner of the building, the third wall ſtanding at right angles with the firſt, and the ſecond parallel to the ſtony lane, on which was an old hedge. On the floor they found a ſtone trough, or rather baſe of a pillar, about a foot high, and the hollowed part ſquare, and two inches deep. They likewiſe found a ſmall earthen patera, which I procured, of the fine red clay, beautifully ſmooth, with letters impreſſed on the bottom; but ſo defaced as not to be intelligible.—Some years ago, the man's father who found theſe ruins dug up a conduit. The owner had no coins, nor knew of any. One of his neighbours ſhowed me a large braſs one defaced."

Papaver, Papaw.

Mr Routh, in another letter to Mr Gale, April 13. 1743, deſcribes a fibula, a coin of Trajan, . . . IANO AVG. . . . P. M. Rev. the emperor ſeated on a pile of arms, a trophy before him, S. P. Q. R. OPTI S. C. and two oaken pieces of the adjoining timber of a houſe which appeared to have been burnt, in the gardens of Jerome Tully, Eſq. of Carliſle. The earth as far as they dug was artificial, and antiquities are only found at a conſiderable depth.

Dr Stukeley ſays, the Roman caſtrum lies on the top of the hill above the village, and he traced its whole circumference, a bit of the Roman wall by the river ſide going to Wigton, and there the ditch is plainly viſible, though half filled up with the rubbiſh of the wall. A ſubterraneous vault, floored with large ſlabs of free-ſtone, was found in the paſture of the ſouth-eaſt angle. The name of *Boroughs* includes both cloſes where it ſtood; and they find ſtones and ſlates with iron pins in them, coins, &c. on the whole ſpot below it, towards the water-ſide. It was a beautiful and well choſen plan, on the ſouth-weſt ſide of a hill, a noble river running under, and pretty good country about it. Coins of Claudius, Adrian, and a ſilver Geta, PONT. *rev.* PRINCEPS IVVENTVTIS. He ſuppoſes its ancient name *Derventio*, derived from the Derwent.

PAPAVER, the POPPY; a genus of plants belonging to the polyandria claſs, and in the natural method ranking under the 27th order, *Rhœædæ*. See BOTANY and MATERIA MEDICA *Index*.

PAPAW, or PAPA-TREE. See CARICA, BOTANY *Index*.

PAPER.

PAPER is a word evidently derived from the Greek παπυρος *papyrus*, the name of that celebrated Egyptian plant which was ſo much uſed by the ancients in all kinds of writing. It would be unneceſſary particularly to deſcribe the different expedients which men in every age and country have employed for giving ſtability to their ideas, and for handing them down to their children. When the art of writing was once diſcovered, ſtones, bricks, leaves of trees, the exterior and interior bark, plates of lead, wood, wax, and ivory, were employed. In the progreſs of ſociety, men have invented the Egyptian paper, paper of cotton, paper manufactured from the bark of trees, and in our times from old rags.

The inhabitants of Ceylon, before the Dutch made themſelves maſters of the iſland, wrote on the leaves of the talipot. The manuſcript of the bramins, ſent to Oxford from Fort St George, is written on the leaves of a palm of Malabar. Herman ſpeaks of another palm in the mountains of that country which produces leaves of ſeveral feet in breadth. Ray, in his Hiſtory of Plants, vol. ii. book xxxii. mentions ſome trees both in India and America, the leaves of which are proper for writing. From the interior ſubſtance of theſe leaves they draw a whitiſh membrane, large, and ſomewhat like the pellicle of an egg; but the paper made by art, even of the coarſeſt materials, is much more convenient in uſe than any of theſe leaves.

The Siameſe, for example, make two kinds of paper, the one black and the other white, from the bark of a tree called *Phiokkloi*. Theſe are fabricated in the coarſeſt manner; but they can be uſed on both ſides with a bodkin of fullers earth.

The nations beyond the Ganges make their paper of the bark of many trees. The other Aſiatic nations within the Ganges, excepting thoſe toward the ſouth, make it of old rags of cotton cloth; but from their ignorance of the proper method, and the neceſſary machinery, their paper is coarſe. This, however, is by no means the caſe with that made in China and Japan, which

which deſerves attention from the beauty, the regularity, the ſtrength, and fineneſs of its texture. In Europe they have diſcovered, or rather carried to perfection, the ingenious art of making paper with old rags, originally either from flax or hemp; and ſince this diſcovery the paper produced from our manufactures is ſufficient for every purpoſe. And though theſe materials have been hitherto abundant, ſeveral philoſophers have attempted to ſubſtitute other vegetable ſubſtances in their place. In the 6th volume of the Tranſactions of the Society for the Encouragement of Arts, we have an account of paper made by Mr Greeves near Warrington from the bark of willow-twigs; and it has been obſerved by a ſociety of able critics, that hop-buds would probably anſwer this purpoſe better. The rags in common uſe for paper-making are a texture of ſupple and ſtrong fibres ſeparated by a lee from the bark of the plants. It would be in vain to employ the whole body of the plant, as this ſubſtance forms a very improper ſtuff for the operations of the paper-mill. From theſe principles we are directed in the choice of vegetable ſubſtances fit for the preſent purpoſe. The greater or leſs degree of purity in the materials is not abſolutely neceſſary; for flax itſelf, without any preparation, could be made into paper; but it would be extremely coarſe, and the bark of nettles or malloes would not bear the expence of labour. Although cotton be uſed in the fabrication of paper in the Levant, and perhaps in China, we are not to conclude that the down of plants in Europe, without the ſtrength or ſuppleneſs of cotton, will anſwer the ſame purpoſe.

History.

THE chief kinds of paper which merit attention in this work are, 1. The Egyptian paper; 2. The paper made from cotton; 3. Paper from the interior bark of trees or liber; 4. Chineſe paper; 5. Japaneſe paper; 6. Paper made from aſbeſt; and, 7. Paper made from linen rags.

1 Egyptian paper. This is the famous paper uſed by the ancients, which was made of a kind of reed called *papyrus*, growing in Egypt on the banks of the Nile. According to Iſidorus, this paper was firſt uſed at Memphis, and Lucan ſeems to be of the ſame opinion,

Nondum flamineas Memphis connexere biblos
Noverat. PHARSAL. lib. iii. ver. 222.

Whatever truth may be in this, it is certain, that of all the kinds of paper uſed by the ancients, the papyrus was the moſt convenient, both from its flexibility and from the eaſe of fabrication. It was a preſent from nature, and required neither care nor culture.

It is not certain at what particular period the ancients began to make paper of papyrus; but there are ſeveral authorities which prove the uſe of it in Egypt long before the time of Alexander the Great.

Pliny, lib. xiii. cap. 11. gives a full deſcription of the method of making this paper in Egypt. They divide, ſays he, with a kind of needle the ſtem of the papyrus into thin plates or ſlender pellicles, each of them as large as the plant will admit. Theſe are the elements of which the ſheets of paper are compoſed. The pellicles in the centre are the beſt; and they diminiſh in value as they depart from it. As they were ſeparated from the reed, they were extended on a table, and laid acroſs each other at right angles. In this ſtate they were moiſtened by the water of the Nile, and while wet were put under a preſs, and afterwards expoſed to the rays of the ſun. "It was ſuppoſed that the water of the Nile * had a gummy quality neceſſary to glue theſe ſtripes together. This, ſays Mr Bruce, we may be aſſured is without foundation, no ſuch quality being found in the water of the Nile; on the contrary, I found it of all others the moſt improper, till it had ſettled and was abſolutely diveſted of all the earth gathered in its turbid ſtate. I made ſeveral pieces of this paper both in Abyſſinia and Egypt; and it appears to me, that the ſugar or ſweetneſs with which the whole juice of this plant is impregnated, is the matter that cauſes the adheſion of theſe ſtripes together; and that the uſe of the water is no more than to diſſolve this, and put it perfectly and equally in fuſion." When there was not enough of ſugar in the plant, or when the water did not ſufficiently diſſolve it, the pellicles were united by a paſte made of the fineſt wheat flour, mixed with hot water and a little vinegar, and when dried they were flattened and ſmoothed by the beating of a mallet.

* *Pliny*, lib. xiii. c. 12.

The ſize of this paper varied much; it ſeldom exceeded two feet, but it was oftentimes ſmaller. It had different names, according to its ſize and quality: The firſt was called *Imperial*, which was of the fineſt and largeſt kind, and was uſed for writing letters by the great men among the Romans. The ſecond ſort was called by the Romans the *Livian* paper, from Livia the wife of Auguſtus; each leaf of this kind was 12 inches. The third ſort was called the *Sacerdotal* paper, and was 11 inches in ſize.

The paper uſed in the amphitheatres was of the dimenſions of nine inches. But what was eſteemed of greateſt value in it, was its ſtrength, whiteneſs, and poliſh. The ink, however, ſunk leſs in paper highly poliſhed; and therefore the characters were more liable to be effaced. When it was not carefully ſoaked in the firſt preparation, the paper brought a leſs price; becauſe letters were with difficulty formed upon it, and it ſent forth a diſagreeable ſmell. To remedy this defect, the paper went through a new courſe of ſizing and hammering; and the ſize uſed on that occaſion was made of light bread ſteeped in boiling water, and paſſed through a filtering cloth. By this means the paper became in the higheſt degree united, and ſmoother than the fineſt linen. It was this paper which gave ſo long a duration to the works of the Gracchi, Tiberius and Caius, in their own hand-writing. "I have ſeen them (ſays Pliny) in the library of Pomponius Secundus, a poet and citizen of the firſt rank, near 200 years after they were written." We may add, that manuſcripts of this paper ſtill remain, which have undoubtedly been written 1000 or 1200 years ago. It appears from Pliny, that the Egyptians paſted together the pellicles of the papyrus by means of the water of the Nile; but that the poliſhing with ivory, and the operations of the hammer and the preſs, were added by the invention and induſtry of the Roman artiſts. The Egyptians ſeem to have known the uſe of ſize; but it is evident from the ſame author, that the Romans uſed a ſtronger ſize in the making of paper. Notwithſtanding the care which was taken to give ſtrength and conſiſtency to the paper of Egypt, the leaves, although collected into a book, were too weak to ſupport themſelves; and for this reaſon it

was

was a common practice, after every five leaves, to inſert a leaf of parchment. There ſtill remains in the abbey of St Germain de-pres a fragment of the epiſtles of St Auguſtine written in this manner. The manuſcript is at leaſt 1100 years old, and in a high ſtate of preſervation.

This paper was an important branch of commerce to the Egyptians, which continued to increaſe towards the end of the Roman republic, and became ſtill more extenſive in the reign of Auguſtus. The demand from foreign nations was often ſo great, as to occaſion a ſcarcity at Rome; and we read in the reign of Tiberius of a tumult among the people in conſequence of this ſcarcity. In a letter of the emperor Adrian, the preparing of the papyrus is mentioned as one of the principal occupations at Alexandria. "In this rich and opulent city (ſays he) nobody is ſeen idle: Some are employed in the manufactory of cloth, ſome in that of writing paper," &c. During the time of the Antonines, this commerce continued equally to flouriſh. Apuleius ſays, that he wrote on the paper of Egypt with a reed of the Nile prepared at Memphis.

The demand for this paper was ſo great towards the end of the third century, that when the tyrant Firmus conquered Egypt, he boaſted that he had ſeized as much paper and ſize as would ſupport his whole army.

St Jerome informs us, that it was as much in uſe in the fifth century when he flouriſhed. The duty on the importation of this commodity had grown exceſſive towards the end of this or the beginning of the ſixth century; and being aboliſhed by Theodoric king of Italy, Caſſiodorus, in the 38th letter of his 11th book, congratulates the whole world on the diſcharge of an impoſt on a merchandiſe ſo eſſentially neceſſary to mankind.

The fathers Montfaucon and Mabillon mention ſeveral fragments written on this paper in the ſixth century. One of them was a charter of the emperor Juſtinian, entitled, *Charta plenariæ ſecuritatis*. Father Montfaucon ſaw in 1698, in the library of Julio Juſtiniani, three or four fragments of paper of Egypt of the ſame antiquity. And Mabillon ſpeaks of ſome books of the Jewiſh antiquities by Joſephus tranſlated into Latin, which ſeemed to have been written in the ſame century, and which were preſerved in the library of St Ambroſe of Milan, but he had not ſeen the manuſcripts. The ſame father mentions to have ſeen in the library of St Martin of Tours the remains of an old Greek manuſcript of the paper of Egypt, and which appeared to him to be of the ſeventh century. He alſo believes, that the copy of St Mark's goſpel preſerved in the regiſter-office of Venice is written on the ſame paper, that it is the moſt ancient of any of the evangelical manuſcripts, and may be ſuppoſed to be written at the lateſt in the fourth century.

According to the ſame antiquarian, the paper of Egypt was uſed in France, and Italy, and other European countries, both for books of learning and public records; and there ſtill remains, adds he, a great number of theſe in the archives of the church at St Dennis, at Corbie, in the abbey de Graſſe, and in other convents.

It is probable, that the invention of paper made of cotton, of which we are afterwards to treat, inſenſibly deſtroyed the reputation and manufacture of the paper of Egypt; but it is ſtill a queſtion at what particular period the fabrication of the latter totally ceaſed. Euſtachius, the learned commentator on Homer, aſſures us, that in his time in 1170 it was no longer in uſe; but Father Mabillon maintains, that many of the popiſh bulls were written on the papyrus in the 11th century.

The Count Maffei, in his *Iſtor. Diplomat.* lib. ii. *Biblioth. Ital.* tom ii. p. 251. is decidedly of opinion, that the paper of Egypt was not in uſe in the fifth century. He conſiders all records written on this paper dated poſterior to this period as not authentic; and the popiſh bulls mentioned by Father Mabillon appear to this learned perſon, as well as the copy of St Mark's goſpel, to be written on paper manufactured from cotton. To reconcile in ſome meaſure theſe contradictory accounts, it may be obſerved, that on ſome particular occaſions, and by ſome particular perſons, the paper of Egypt might have been employed for ſeveral hundred years after it ceaſed to be of general uſe. Whoever wiſhes for a fuller account of the paper of Egypt, may conſult among the ancients Pliny, lib. xiii. and Theophraſtus, lib. iv. chap. ix. and among the moderns, Guilandinus, Scaliger, Saumaiſe, Kerchmayer, Nigriſoli; Father Hardouin in his edition of Pliny; Father Mabillon in his work *De re Diplomat.*; Montfaucon in his Paleography, and in his Collections; the illuſtrious Maffei in his *Iſtor. Diplomat.* the count de Caylus in the Memoirs of the Academy of Inſcriptions; and Mr Bruce in his Travels to diſcover the Source of the Nile.

2 Paper made from cotton.

It is generally ſuppoſed that the invention of the paper, called *charta bombycina*, ſupplanted the Egyptian paper in Greece. This paper is incomparably more laſting, and better calculated for all the purpoſes of writing. It is not preciſely known at what period this art, which ſuppoſes a great variety of previous experiments, was firſt reduced to practice. The application of cotton to the purpoſes of paper-making requires as much labour and ingenuity as the uſe of linen rags; and for this reaſon, if we could determine the preciſe time when paper was made from cotton, we ſhould alſo fix the invention of the art of paper-making as it is preſently practiſed in Europe. Father Montfaucon proves, by inconteſtable authorities, that paper from cotton was in uſe in 1100. This paper in the Greek language is called χαρτη βυμβυκινος, or βαμβακινος; for although βομβυξ is the Greek word for ſilk, yet in thoſe times it was applied, as well as βαμβαξ, to cotton; and hence the Italians to this day call cotton *bambaccio*.

The moſt ancient manuſcript of this paper which Father Montfaucon ſaw with the date, was that in the French king's library, written A. D. 1050; but as the manuſcripts without date are infinitely more numerous than thoſe which are dated, and as ſome conjecture can be formed concerning them from the manner of writing, this father believes ſome of theſe to have been written in the 10th century.

The reſearches of the ſame learned antiquarian amount almoſt to a proof that this paper was diſcovered towards the end of the ninth century or beginning of the tenth; for before the twelfth century it was commonly uſed in the eaſtern empire, and even in Sicily. Roger king of Sicily ſays, in a diploma written in 1145, that he had

renewed

renewed on parchment a charter which had been written on paper of cotton, in the year 1100, and another which was dated in the year 1112. About the ſame time the empreſs Irene, in the ſtatutes for ſome religious houſes at Conſtantinople, ſays that ſhe had left three copies of the ſame ſtatutes, two in parchment and one in paper from cotton. From that period this paper was ſtill more in uſe through all the eaſtern empire; and innumerable Greek manuſcripts are found written on it in all the great libraries.

This diſcovery happened at a time when there ſeems to have been a great ſcarcity of parchment; for it was about this period that the Greeks eraſed the writings of Polybius, Diodorus of Sicily, and many valuable ancient authors, for the ſake of the parchment.

It was the invention of this paper of cotton which deſtroyed the manufacture of the paper of Egypt; for, if we may believe Euſtathius, who wrote towards the end of the 12th century, the latter paper had gone into diſuſe but a little before his time. We may eaſily believe, however, that this new invention, although of great advantage to mankind, was introduced by degrees.

The manufacture of this kind of paper has flouriſhed in the Levant for many ages, and is carried on with great ſucceſs even to this day. It is not neceſſary to ſay any thing farther, than that the paper produced from cotton is extremely white, very ſtrong, and of a fine grain.

3 Paper from the interior bark of trees or liber.

This paper of the ancients was made from the white pellicle or inner coat found in many trees between the bark and the wood. The trees commonly in uſe were the maple, the plane tree, the elm, the beech, the mulberry, and moſt frequently the lindin-tree. The ancients wrote on this inner coat after they had ſeparated it from the bark, beat, and dried it.

The fathers Mabillon and Montfaucon ſpeak frequently of manuſcripts and diplomas written on paper made from bark; and poſitively diſtinguiſh it from the Egyptian paper, becauſe it was thicker, and compoſed of parts leſs adhering together.

There are many palm trees in India and America to which botaniſts have given the name *papyraceous*, becauſe the natives have written with bodkins either on the leaves or the bark. Such is the American palm, called *tal* by the Indians; and of the ſame kind is the guajaraba of New Spain. Every palm, the bark of which is ſmooth, and the leaves large and thick, may be uſed for this purpoſe.

4 Chineſe paper.

The art of making paper from vegetables reduced to ſtuff was known in China long before it was practiſed in Europe; and the Chineſe have carried it to a degree of perfection hitherto unknown to the European artiſts. The fine paper in China is ſofter and ſmoother than that of Europe; and theſe qualities are admirably adapted to the pencil, which the Chineſe uſe in writing. Several kinds of their paper diſcover the greateſt art and ingenuity, and might be applied with much advantage to many purpoſes. They are capable of receiving, for example, the impreſſion of types; and both maps and prints have been executed with ſucceſs on the Chineſe paper.

The different ſorts of paper vary in China according to the materials of which they are compoſed, and to the different manner of manufacturing thoſe materials. Every province has its peculiar paper. That of Sechwen is made of linen rags as in Europe; that of Fo-kien, of young bamboo; that of the northern provinces, of the interior bark of the mulberry; that of the province of Kiang-nan, of the ſkin which is found in the webs of the ſilk-worm; finally, in the province of Huquang, the tree chu or ko-chu furniſhes the materials with which they make paper.

The method of fabricating paper with the bark of different trees is nearly the ſame with that which is followed in the bamboo. To give an idea, therefore, of the manner of manufacturing the interior barks of the mulberry, the elm, and the cotton-tree, it will be ſufficient to confine our obſervations to the bamboo.

The bamboo is a kind of cane or hollow reed, divided by knots; but larger, more elaſtic, and durable than any other reed.

The whole ſubſtance of the bamboo, compoſed of filaments, and a great abundance of fibrous materials, is employed in this operation. The ſhoots of one or two years, nearly the thickneſs of a man's leg, are preferred. They ſtrip the leaves from the ſtem, cut them into pieces of four or five feet long, make them into parcels, and put them into water to macerate. As ſoon as they are ſoftened, which generally happens in five days, they waſh them in pure water; put them into a dry ditch; cover them with lime for ſome days, which they water for the purpoſe of ſlacking: they waſh them carefully a ſecond time; cut every one of the pieces into filaments, which they expoſe to the rays of the ſun to dry and to bleach them. After this they are boiled in large kettles; and then reduced to ſtuff in mortars of wood, by means of a hammer with a long handle, which the workman moves with his foot.

The ſtuff being thus prepared, they take ſome ſhoots of a plant named *koteng*, which, ſteeped in water four or five days, is reduced to an unctuous or glutinous ſubſtance; and when they proceed to make the paper, this is mixed with the ſtuff in certain exact quantities, for on this mixture depends the goodneſs of the paper.

When the extract from the koteng is mixed with ſtuff of the bamboo, the whole mixture is beat together in mortars till it becomes a thick and viſcous liquor. This is poured into large tubs or reſervoirs, ſo exactly framed as that no part of the liquor can eſcape.

The workmen after this plunge their forms into the liquor; take out what is ſufficient for a ſheet of paper; which immediately, from the glutinous ſubſtance, becomes firm and ſhining; and is detached from the form by turning down the ſheet on the heap of paper already made, without the interpoſition of pieces of woollen cloth, as in Europe.

In order to dry this paper, they have a hollow wall, the two fronts of which are ſmooth and extremely white. At the extremity of this wall is placed a ſtove, the pipes of which are carried in a circular manner through the whole empty ſpace. The ſheets of paper are laid on the ſurface, to which they adhere till they come over them with a ſoft bruſh; and after they are dry, it is eaſy to diſtinguiſh the ſide which received impreſſions from the bruſh from that which adhered to the wall. By means of this ſtove the Chineſe dry their paper as faſt as they can make it; but it is only in cold ſeaſons, or in certain

certain provinces, that they find this expedient neceſſary.

The Chineſe paper muſt be dipped in a ſolution of alum before it can take either ink or colours. They call this operation *faner*, from the Chineſe word *fan*, which ſignifies alum. The following is the manner of preparing this ſolution: Six ounces of iſinglaſs cut very ſmall is put into boiling water, and conſtantly ſtirred, that it may diſſolve equally. When the iſinglaſs is wholly diſſolved in the water, they throw in twelve ounces of calcined alum, which is alſo ſtirred till it is completely diſſolved and mixed with the iſinglaſs. This compoſition is afterwards poured into a large and deep baſon, at the mouth of which is a little round piece of wood; the extremity of every ſheet of paper is fixed in another piece of wood, with a ſlit made to receive it; by means of this equipage they plunge the ſheet of paper into the compoſition of alum and iſinglaſs; and when it is fully penetrated, they draw it out, making it glide over the little round piece of wood. The long piece of wood which holds the ſheet by one end, and keeps it from tearing, is afterwards ſuſpended with it on a wall till it is ſufficiently dry.

The Chineſe give the paper intended for different purpoſes different preparations. We ſhall confine our obſervations to the ſilver colour which they give to ſome paper. They take two ſcruples of paſte made of cows hide, one ſcruple of alum, and a pint of water: the whole is boiled on a ſlow fire till the water be evaporated. The ſheets of paper are then ſtretched on a ſmooth table, and covered over with two or three layers of this paſte. They take afterwards a certain quantity of talc, waſhed and boiled in water, with the proportion of one-third of alum; this is dried, reduced to a powder, paſſed through a ſieve, boiled a ſecond time in water, dried in the ſun, and again paſſed through the ſieve. This powder is ſpread equally over the ſheets of paper, prepared as we mentioned above; and then they are dried ſlowly in the ſhade.

The ſheets of paper, covered in this manner with talc, are laid upon a table, and rubbed with a little cotton; which fixes a certain quantity of the talc in the paper, and carries off the overplus to be uſed on another occaſion. By means of this compoſition the Chineſe draw all manner of figures on their paper.

Formerly the Chineſe wrote with a bodkin of iron on tablets of bamboo; afterwards on ſatin with a pencil; and during the dynaſty of their tyrants, about 160 years before Chriſt, they diſcovered the art of making paper.

The paper made from the bamboo is ſufficiently white, ſoft, cloſely united, without the leaſt inequality on the ſurface to interrupt the motion of the pencil, or to occaſion the riſing of the materials which compoſe it. Meanwhile every kind of paper made from the bamboo or the bark of trees, is readier to crack than that made in Europe; beſides, it is more ſuſceptible of moiſture, and ſooner deſtroyed with duſt and worms. To obviate this laſt inconveniency, they are obliged frequently to beat their books in China, and to expoſe them to the ſun. It may be obſerved, however, that the Chineſe paper, employed for various purpoſes in Europe, has been preſerved for a long time without receiving damage either from moiſture or inſects.

5 Japaneſe paper.

According to Kempfer, the bark of the *morus papifera ſativa*, or true paper tree, is chiefly employed for making paper in Japan. Every year after the fall of the leaves, which happens in the tenth month, correſponding to our December, the Japaneſe cut the young ſhoots of this tree into pieces of about three feet, collect them into parcels, which they boil in water into which they have caſt a certain quantity of aſhes. If the wood is dry, they take care to ſteep it 23 hours in water before it is boiled. The parcels are kept in a cloſe copper till the bark at the extremity of the ſhoots is ſeparated from the ſtem about half an inch; they are then cooled; and the bark alone is fit for making paper. They begin by a preparation which conſiſts of cleaning the bark, and ſeparating the good from the bad. For this purpoſe they ſteep it in water three or four hours; and as ſoon as it is ſoftened they ſcrape off with a knife whatever is blackiſh or green, and at the ſame time ſeparate the ſtrong bark of a year's growth from the ſlender which covers the young ſhoots. The firſt of theſe gives the whiteſt and beſt paper. If there is any of the bark of more than a year's growth, it is laid aſide for the coarſeſt.

After the bark has been culled and cleaned in this manner, it is boiled in a clear ley till the matter is of that conſiſtency, that, being touched gently with the finger, it draws off in the form of hairs, or like a collection of fibres. During the time of boiling it is conſtantly ſtirred with a ſtrong reed, and the waſte by evaporation ſupplied from time to time with additional quantities of the clear ley. To make this ley, they put two pieces of wood acroſs the mouth of a tub, cover them with ſtraw, on which they lay a bed of aſhes a little moiſtened; and pouring boiling water on the aſhes, the ſalts contained in them are carried down to the tub. This is what is called a *clear ley*.

After the bark is in the condition we have juſt now ſtated, it is waſhed with great care; for on this waſhing depends in a great meaſure the goodneſs of the paper. It is put into a kind of ſieve through which the water can flow freely; and great care is taken to turn it with the hand till it is ſufficiently diluted, and reduced to ſoft and tender fibres. For the fineſt paper a ſecond waſhing is requiſite, and a piece of cloth is uſed inſtead of a ſieve.

When the bark is waſhed, it is laid on a ſtrong and ſmooth table, and beat with a kind of baton of hard wood till it is reduced to a proper conſiſtency. It becomes indeed ſo ſoft, that it reſembles paper ſteeped in water.

The bark prepared in this manner is put into a narrow tub, with a glutinous extract from rice and the root oreni, which is very viſcous. Theſe three ſubſtances, mixed together, are ſtirred with the reed till they form a liquor of an equal and uniform conſiſtency. This compoſition is poured into tubs ſimilar to thoſe uſed for filling the forms in our paper mills.

As ſoon as the ſheets are made and detached from the form, they are laid in a heap on a table covered with a double mat. A ſmall chip of cane is placed betwixt every ſheet. This piece of cane jutting out, ſerves to diſtinguiſh the ſheets, and afterwards to raiſe them. Every one of the heaps is covered with a plate or thin board of the exact ſize of the paper. In proportion as the paper dries, or is able to bear it without danger of being compreſſed into one maſs, they lay

on additional weights. This preſſure, intended to carry off any unneceſſary moiſture, is continued for 24 hours, when the ſheets are ſuſpended, by means of the little pieces of reed, to long plants, in the open air, till they are completely dried.

The extract from rice is made in an unvarniſhed earthen pot. The pot is agitated at firſt gently, then more briſkly: new water is poured in, and then it is filtered through a linen cloth. The finiſhing of the proceſs is determined by the viſcoſity of the ſubſtance.

The infuſion of the root oreni is made in the following manner: The root, peeled and cut into ſmall pieces, is infuſed into water for one night, during which time it communicates a viſcoſity ſufficient for the purpoſe to which it is applied.

The Japaneſe paper is of ſuch prodigious ſtrength, that the materials of which it is compoſed might be manufactured into ropes. There is ſold at Serige, the capital city of the province of Japan of that name, a kind of it fit for bed hangings and wearing apparel; reſembling ſo much ſtuffs of wool and ſilk, that it is often taken for them. The following is Kempfer's catalogue of trees uſed in Japan for the manufactory of paper. 1. The true paper tree, called in the Japaneſe language *kaadſi*, Kempfer characterizes thus: *Papyrus fructu mori celſæ, ſive morus ſativa foliis urticæ mortuæ cortice papifera.* 2. The falſe paper tree, called by the Japaneſe *katſi*, *kadſire*; by Kempfer, *papyrus procumbens lactescens folio longo lanceata cortice chartaceo.* 3. The plant which the Japaneſe call *oreni* is named by Kempfer *malva radice viſcoſa flore ephemero magno punico.* 4. The fourth tree uſed for paper is the *futokadſura*, named by Kempfer *frutex viſcoſus procumbens folio telephii vulgaris emulo fructu racemoſo.*

The deſcription of theſe trees, given more particularly by Kempfer than the limits of this work will permit, may be of great ſervice to lead botaniſts to diſcover the European plants and ſhrubs adapted, like the Japaneſe, for the fabrication of paper.

Before finiſhing our reflections on this part of the ſubject, it will be proper to give a juſt idea of the attempts which have been made to increaſe the original materials of paper in Europe.

A ſlight attention to the proceſs in China in reducing the bamboo to a paſte, by a careful and ingenious analyſis, and to the long and proper method of the Japaneſe of ſeparating the principal fibres of the bark of the mulberry, will ſhow the abſurdity not only of taking plants without any kind of choice, but of giving them no preparation except that of pounding them with mallets.

With a proper ſelection, and good principles, it appears not improbable that many of the European plants might be uſed with great advantage in conſtructing ſeveral kinds of paper.

It is evident that the materials uſed by the Chineſe require leſs labour and preparation than the ſtuff of linen rags. The ſheets of the Chineſe paper are eaſily detached from the form; they are laid in heaps without the interpoſition of pieces of woollen cloth; the ſuperfluous water is immediately diſcharged; and they require not, as in Europe, the vigorous action of preſſes to unite the parts more cloſely together.

6 Paper made from aſbeſtos.

The aſbeſtos is a fibrous ſubſtance of little ſtrength, the threads of which are eaſily broken. See MINERALOGY *Index*. This ſubſtance has the peculiar property of ſupporting the action of fire without receiving any damage: whence pieces of cloth and garters made of it are incombuſtible. From the knowledge of this property paper has been made of the aſbeſtos. Dr Brukman, profeſſor at Brunſwick, publiſhed the natural hiſtory of this foſſil; and four copies of his book, in the library of Wolfenbuttle, are on this paper.

The manner of fabricating this paper is deſcribed by M. Lloyd in the Philoſophical Tranſactions, N° 166. A certain quantity of the aſbeſtos is pounded in a mortar of ſtone till it be reduced to a ſubſtance like cotton. All the parts of earth or ſtone remaining in the aſbeſtos are then taken off by means of a fine ſieve, and it is formed into ſheets of paper by an ordinary paper mill. Mixing it with water reduces it to ſtuff; only, as it is heavier than that from linen rags, it requires to be continually ſtirred when they are taking it up with the frames. The only excellence of this paper is, that the writing diſappears when it is caſt into the fire. It muſt be obſerved, at the ſame time, that as it is of a ſlender conſiſtency, and eaſily torn, it is more an object of curioſity than uſe.

7 Paper made from rags.

This paper is manufactured through all Europe of linen rags collected in the cities and in the country. This kind of paper was utterly unknown to the ancients. The *libri lintei* mentioned by Livy, I, lib. iv. Pliny, XIII. c. xi. and by other Roman writers, are demonſtrated by Guilandin, in his commentary on Pliny, &c. to have been written on pieces of linen cloth, or canvas prepared in the manner of painters.

But it is not ſufficient to be certain that paper from linen is a modern invention; it is neceſſary to know by what nation, and at what period, it was diſcovered. Polydore Virgil, *De Inventoribus Rerum*, C. II. c. viii. confeſſes his ignorance of theſe facts. Scaliger, without any kind of proof, gives the glory to the Germans; and Count Maffei to the Italians. Other writers aſcribe this honour to ſome Greek refugees at Baſil, to whom the manner of making paper from cotton in their own country had ſuggeſted the idea. Du Halde is perſuaded that Europe derived this invention from the Chineſe, who, in ſeveral provinces, make paper of rags nearly in the ſame manner that we do. But this invention was practiſed by the Europeans before they had any communication with China, and before the taking of Conſtantinople, at which time the Greek refugees were ſuppoſed to have retired to Baſil. The preciſe time of this diſcovery in Europe is not exactly known. Father Mabillon believes that it was in the twelfth century; and cites a paſſage of Pierre de Clugny, born A. D. 1100, to prove it. The books which we read every day, ſays that abbé in his treatiſe againſt the Jews, are written on ſheeps and calves ſkins; or on oriental plants; or, finally, *Ex raſuris veterum pannorum.* If theſe laſt words ſignify paper, ſuch as we uſe, there were books of it in the twelfth century. But this citation is the more to be ſuſpected, as Montfaucon himſelf, after the minuteſt ſearch in France and Italy, could find no book on this paper antecedent to the death of St Louis, A. D. 1270.

The epocha of this invention was not determined till 1762, M. Mierman having propoſed a reward to the perſon who could procure the moſt ancient manuſcript written on this kind of paper. The collection of all the memoirs ſent to him along with the manuſcripts was

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published at the Hague in 1767; and it appeared that this paper had been used in Europe before the year 1300.

In 1782 the Abbé Andrez published a work entitled *Dell' Origine, Progressi, e Stato attuale d'Ogni letteratura;* wherein he speaks of the discovery of many kinds of paper, and particularly of that made of rags. The Abbé Andrez maintains, that paper made from silk was very anciently fabricated in China, and in the eastern parts of Asia; that the art of making this paper was carried from China to Persia about the year 652, and to Mecca in 706. The Arabs substituted cotton, the commodity of their own country, in place of silk or rather bamboo. This paper of cotton was carried into Africa and Spain by the Arabs. The Spaniards, from the quantity of linen to be found in the kingdom of Valencia, seem first to have adopted the idea of using linen rags; and the most ancient paper of this kind is of Valencia and Catalonia. From Spain it passed into France, as may be learned from a letter of Joinville to St Louis about the year 1260. It is discovered to have been in Germany in 1312, and in England in 1320 and 1342. In consequence of the paper made from cotton in the Levant, the paper from linen was introduced much later into Italy. See the work of Abbé Andrez, printed at Parma, 1782, in 8vo; and Mierman's Collection, published at the Hague.

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To give a concise view of this subject, it will be necessary to proceed with all the important parts of the operation in their order.

3 The selection of rags.

The selection of the rags, is the arranging of them into different lots, according to their quality and to the demand of the paper mill. In general this selection is very much neglected: The degrees of fineness and whiteness, distinguished with little care, are thought to be the only objects of importance; whereas the hardness and softness, the being more or less worn, are much more essential in this selection. It is certain, that a mixture of soft and hard rags occasions much more loss in the trituration than a difference in point of fineness or of colour. This exactness in the selection is still more necessary where cylinders are used instead of mallets. We cannot do better than to give the method practised in Holland as worthy of imitation.

They begin by a general separation of the rags into four lots; superfine, fine, middle, and coarse. These lots are given to selectors, who subdivide each of them into five chests. They have besides a bench, on which is fixed vertically a hook, and a piece of scythe which is terminated by a crooked point.

The person, for example, who has the charge of the fine lot, puts into one of the chests the hard rags, or those which are little used, into another the soft, into a third the dirty, into a fourth those which are stitched or hemmed, and, finally, into the fifth the superfine rags which happen to be among the fine.

After this process, the women who have the charge of it are at extreme pains to pick out every kind of sewing, and especially the knots of thread and the hems, by means of the hook or scythe which they have under their hands. They take care also by the same means to cut and reduce the rags exactly by the warp and the woof into small pieces. It is of great advantage to cut or tear the pieces of rags by a thread, whether it be by the warp or woof; because if it is done obliquely, many of the ends are lost in the operation.

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When they have selected a certain quantity of each of these subdivisions, they are placed on an iron grate, which covers a large chest where they are beat, and otherwise turned, till the filth and dust pass through the bars of the grate and fall into the chest.

The number of lots in the selection of rags must be proportioned to the mass from which the selection is made, and to the kinds of paper produced by the mill. Some mills, the work of which is considerable, make nine lots of their rags, five of which respect the fineness, and the rest the cleanness and the colour. In ordinary mills there are only four lots, and in some two.

We have already observed, that the selection which regards the hardness of the materials is the most essential; because it is of great importance to obtain stuff composed of equal parts, and without any loss. But it is necessary to add, that the fineness and beauty of the paper depend in some cases on a selection not rigorous. Thus, for example, it is of great service to allow the middling to retain some part of the fine, and the fine some part of the superfine; for without this the inferior kinds of paper can never be of great value. The most common fault is to mix the rags of the inferior lots with the superior; which though it augments the quantity of paper, is extremely injurious to the quality. It does much better to mix part of the superior lots with the inferior. It was the want of attention to this mixture which makes some paper mills excel in the superior sorts of paper while the inferior kinds are of a very bad quality.

The selection of rags being made with exactness, however, and the lots being fermented and triturated separately, the mixture may be made with much greater advantage when they are both reduced to stuff; always taking care that it be in the same proportion as if it were in the state of rags, and only in the manner which we just now mentioned; for the inferior sorts gain more in beauty and quality by this mixture than is lost in stuff; whereas if the fine stuff receives a certain quantity of the inferior, the paper is more damaged in its value than increased in quantity. In this manner the interest of the manufacturer, as in all cases, is intimately connected with the goodness of his commodities.

9 The washing and fermentation of rags.

In some mills the place for fermentation is divided into two parts, one of which serves for washing away the filth from the rags. After allowing them to steep for some time in a large stone vat, they stir them, and pour in fresh water till the impurities connected with the rags run over. When they are as clean as they possibly can be made by this kind of washing, they are laid in a heap to putrefy. In this condition they experience a degree of fermentation, which is first discovered by a mouldiness of the different pieces of cloth. Afterwards the mass grows warm; and then it is of great consequence to attend to the progress of this heat, in order to moderate its effects: for this purpose, the middle of the heap, where the fermentation is strongest, is turned out, and *vice versa*. In mills where mallets are used, the putrefaction is carried to a great height, which is frequently attended with two inconveniences. The first is, that

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that a part of the rags is reduced to an earthy ſubſtance, which is found in great abundance about the cutting table, as we ſhall afterwards have occaſion to ſee. But beſides this waſte, exceſſive fermentation makes the ſtuff incapable of ſuſtaining the action of the mallets till it is equally pounded. A paper made from a ſtuff too hard and too little fermented, is coarſe and ill compacted; that made from rags too much fermented is compoſed of fibres without ſoftneſs and without ſtrength.

The ſecond inconveniency is, that the rags turn greaſy by too much fermentation, and of conſequence it is very difficult to ſeparate and reduce them by all the waſhings of the trituration.

We ſhall not deſcribe the form of the place for fermentation, becauſe in different paper works theſe places are of different conſtructions: it is ſufficient to ſay, that they are all placed in low ſituations and made very cloſe. The ſelected rags are placed in them in heaps, and watered from time to time to bring on the fermentation. In different paper mills they practiſe different methods in the putrefaction of their rags.

In certain provinces in France, they lay in the place for putrefaction a heap equivalent to what the mill can triturate in a month. When this is equally and ſufficiently moiſtened by means of moveable pipes, they cover it with an old heap, which has lain a month in a ſtate of fermentation. When this old heap is exhauſted by the mill, the new one becomes a covering to another, and ſo on. From this detail it is eaſy to perceive, that there muſt be near three weeks difference of putrefaction in the ſame heap, and alſo that in this method there is no allowance for thoſe ſeaſons in which the fermentation advances more rapidly.

In general the putrefaction goes on more ſlowly in proportion to the fineneſs of the rags. But when, on any occaſion, it advances more rapidly than the demand from the mill, the rags are turned over and watered, to ſtop the fermentation and prevent the bad effects.

All the inconveniences attending the exceſs of putrefaction are remedied in Holland by machines which triturate the rags without having recourſe to it; and their ſucceſs in this manner of preparing the ſtuff has attracted the notice of the French artiſts, ſome of whom have adopted with advantage the Dutch machinery.

Meanwhile, it is poſſible to carry the method of putrefaction to much greater perfection; and ſeveral manufacturers have made attempts ſo well concerted, as to deſerve the attention of thoſe who ſtudy the ſubject.

In the neighbourhood of Bruſſels ſome paper manufacturers, who have conſtructed their mills after the Dutch plan, have ſtill found it neceſſary to putrefy their rags; but, at the ſame time, they have an excellent method for moderating the effects of this putrefaction. In the great galleries connected with the buildings of the paper mill, they have conſtructed a continuation of cheſts, capable each of them of containing a certain quantity of rags; for example, the quantity which the cylinder can triturate in one day. The number of cheſts is equal to the number of days which the rags in any ſeaſon require for putrefraction; and the number actually employed is greater or leſs according to the ſeaſon. In proſecuting this plan, they lay a heap of rags in one cheſt, as often as they take one from another. It ſhould alſo be obſerved, that, for the ſake of the fermentation, the rags are firſt moiſtened in a large hollow ſtone before they are arranged into the cheſts. Art of Making Paper in Europe.

The peculiar advantages of this method are, the equal fermentation of the rags, without any part of them being weakened; great eaſe in waſhing them; and it is even pretended, that a leſs degree of fermentation renders the impurities and the diſcoloured parts both of hemp and linen more ſoluble, and conſequently the ſtuff of a purer white.

10 Cutting table.

When the rags are reduced to a proper ſtate of putrefaction, they are carried to the cutting table, which is placed on ſolid treſſels, and encloſed on three ſides to contain the rags cut on it. Before the table is fixed vertically a part of the blade of a ſcythe, the edge of which is turned from the operator. This workman, in a ſituation rather elevated, takes from the left ſide a handful of the putrefied rags, and arranging them the long way, gives them a gentle twiſt, preſſes the half-formed rope againſt the blade of the ſcythe, and, in the manner of ſawing, cuts it into three or four pieces, which he throws to the right ſide of the table. In this operation the rags loſe part of their filth, and eſpecially of the earthy particles occaſioned by too much putrefaction.

11 Mills for triturating the rags.

When the rags have been ſubmitted to all the foregoing operations, they are in a condition to be reduced into a fibrous ſtuff, of which the paper is made. To obtain this ſtuff, mills are conſtructed on different principles. Thoſe which have been uſed for a long time over all Europe, and which by a ſtatement in the *Encyclopédie Methodique*, publiſhed at Paris in 1789, are ſtill uſed in France, are mills with mallets. But the mills invented by the Dutch, and uſed in the neighbouring provinces, and, excepting one inſtance, in every part of Great Britain, are mills with cylinders or rollers. In the former of theſe, the mallets are raiſed by notches fixed at convenient diſtances in a large circular beam of wood. The teeth fixed on the end of the mallet fall into a correſponding gap made the whole breadth of the plate, and the ſtrokes are repeated till the rags are reduced to a proper conſiſtency. On ſupplying the vat with water, and carrying off all the impurities, the operation is nearly ſimilar to that in the mills with cylinders.

Such is the nature of what may be called the *old method of making paper*. It was proper to ſpeak of this old method, becauſe at one time, and that not very diſtant, it univerſally prevailed. That it was inferior to that now in practice, ſeems very evident; and that the rotting of the rags was peculiarly abſurd, cannot be denied, as the paper made of fermented ſtuff could neither be ſo ſtrong nor ſo durable as that which is made in the common way without putrefaction. The only kind of paper that, with any propriety, could be made from putrefied ſtuff, was paſteboard; but we are informed by the moſt intelligent papermakers in Britain, that they ſeldom or never even putrefy the rags or ropes of which paſteboard is made. It will now be requiſite to ſtate the method preſently in practice, with the improvements lately made in the art.

12 The duſter.

The duſter is made in the form of a cylinder, four and a half feet in diameter, and five feet in length. It is altogether covered with a wire net, and put in motion by its connection with ſome part of the machinery. A

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convenient quantity of rags before the ſelection are encloſed in the duſter, and the rapidity of its motion ſeparates the duſt from them, and forces it through the wire. It is of conſiderable advantage to uſe the duſter before ſelection, as it makes that operation leſs pernicious to the ſelectors.

The ſelection is performed much in the ſame manner as we have already deſcribed; only it is found more convenient to have the tables for cutting off the knots and ſtitching, and for forming them into a proper ſhape, in the ſame place with the cutting table. The ſurface both of theſe and of the cutting table is compoſed of a wire net, which in every part of the operation allows the remaining duſt and refuſe of every kind to eſcape.

The rags, without any kind of putrefaction are again carried from the cutting table back to the duſter, and from thence to the engine, where, in general, they are in the ſpace of ſix hours reduced to the ſtuff proper for making paper. The hard and ſoft of the ſame quality are placed in different lots; but they can be reduced to ſtuff at the ſame time, provided the ſoft be put ſomewhat later into the engine.

13 Deſcription of a paper mill.

The engine is that part of the mill which performs the whole action of reducing the rags to paſte, or, as it may be termed, of trituration. The number of the engines depends on the extent of the paper work, on the force of water, or on the conſtruction of the machinery.

It will afford a ſufficient idea of the work, to give in detail a deſcription of the different parts of the engine. Figure 1. repreſents the chapiter which covers the roller. It is four feet three inches in length, and two feet eight inches in breadth. The ſuperior part is pierced with two openings running croſswiſe, 1, 2, 3, 4, into which enter the cheſſes, or wicker frames, figures 6. and 7.; the firſt, made of wire cloth, enters into the opening 3 and 4; the ſecond made of hair cloth, and ſtrengthened with ſeveral croſs bars of wood, enters into the opening 1, 2, ſerves to retain the ſmall pieces of rags which eſcape through the firſt, and prevents them from falling into the dalot or hole-ſcupper, fig. 2. This hole-ſcupper is placed acroſs the vat of the engine, parallel to the axle of the roller; the part *g* enters into the notch *c* of the chapiter; and the extremity *h* enters into the opening *k* of the tunnel *k l* (fig. 3.), by which means the water daſhed through the wicker frames by every revolution of the roller is precipitated into the canal *f h*, and loſes itſelf below the engine. The figures 4, 9, and 10, repreſent the roller in perſpective, in plane, and in profile. It is two feet in diameter, and two feet three inches in length. The trundle head A is 16 inches in diameter, about half as much in length, and furniſhed with ſeven ſpindles of iron, which are ſcrewed to the end of the trundle head, made alſo of iron. The teeth or blades of the roller are 27 in number, and fitted ſtrongly into the wood which compoſes its body, parallel to its axis. They are of that thickneſs as to leave as much empty ſpace as they occupy. The exterior face of each of the blades ſhould be made round, and divided into two parts, with a longitudinal motion, as in the profile *a a a*, fig. 10.

Plate CCCCIV. Fig. 1.

The axis A B of the roller (fig. 4. and 9.) has two parts perfectly rounded in A and in B, which perform the office of pivots. Theſe pivots reſt in the ſockets A and B (fig. 8.) in the middle of the levers OAH and OBH. It is by means of theſe levers that they raiſe at pleaſure, or lower the axis of the roller, and fit it exactly, and in a parallel manner, to the plate. The plates (ſee fig. 5.) are made of ſteel cut into channels, in ſuch a manner as to correſpond with the blades of the roller. Their channels are not perpendicular, but oblique; and there are two rows of them, *b x*, *x d*, conſiſting of ſeven or eight blades each on one plate.—Thoſe in *b x*, for the purpoſe of changing the plate, lie in an oppoſite direction to thoſe in *x d*. The levers are kept in their poſition near the vat by bands of iron, MN and *m n*; between which they are made higher or lower by the cogged wheel H, which ſupports one of the extremities. Wedges N *n* are likewiſe employed to fix the levers at a convenient height above the plates. Finally, Every vat is ſupplied with a ſmall ſlide door, which is occaſionally raiſed to carry the prepared ſtuff by means of the ſcuppers of wood to the general repoſitories.

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14 Working of the engine.

Fig. 8. is placed in the vat fig. 8.; the roller (fig. 4.) is placed above it in ſuch a manner that the pivots reſt in the ſockets of the levers; the ſcupper (fig. 2.) and the chapiter are diſpoſed in the manner above mentioned. The vat is charged with a proper quantity of rags, and freſh water is admitted by a ſpigot placed at one of the corners. In this ſituation, when the engine is put in motion, the roller turning upon its axis draws the water and the rags by the leaſt inclined plane, and making them paſs between its blades and the channels of the plate, daſhes them againſt the chapiter and the wicker-frames; and, in ſhort, part of them falls back into the vat, and returns into the circulation. The cauſe of this circulation is evidently the continual void occaſioned by the movement of the roller on the one ſide, and the return of the water and the ſtuff on the other.

As all the rags are not thrown towards the part E*d* of the chapiter, from whence they might fall back into the vat, but a part of them to a greater diſtance; it is neceſſary to have the wicker frames formerly deſcribed, not only to prevent their loſs, but to allow the dirty water to eſcape. The ſpigot at the corner of the vat continually ſupplies this waſte of water. This operation would be ſufficient to whiten the rags, although the rollers were raiſed conſiderably from the plate; and therefore the force and action of the rollers reducing them to ſtuff muſt be much more effectual. It requires great ſkill to conduct the engine, whether it be with regard to the firſt quantity, to the proper time for adding the ſofter rags, to the augmenting or diminiſhing the water in proportion to the trituration; or, finally, to knowing exactly when the ſtuff is reduced to a proper conſiſtency.

In the paper manufactory at Montargis, it was attempted to introduce rollers of the greateſt ſtrength and the leaſt weight poſſible, in order to give them the greater rapidity; but the experiment did not ſucceed: the rollers of prodigious rapidity were found to produce ſtuff neither in greater quantity nor of ſuperior quality. The moſt experienced artiſts have eſtabliſhed a proportion between the motion of the roller and the greater or leſs reſiſtance of the rags. And the Dutch, who have arrived at very great perfection in this art, have followed a method totally different from that practiſed at Montargis. A roller in Holland complete in all its

parts

Fig. 1.

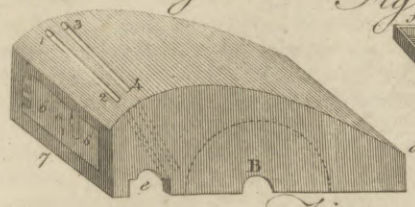


Fig. 2.

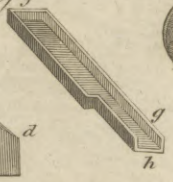


Fig. 4.

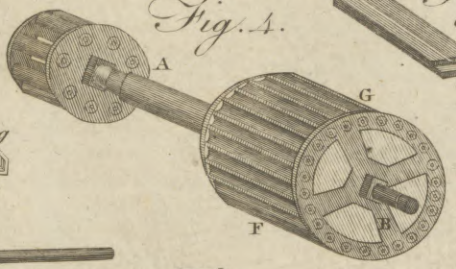


Fig. 5.

Fig. 6.

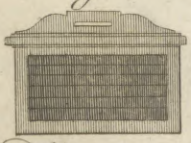


Fig. 11.

Fig. 12.

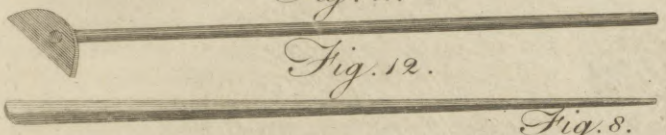


Fig. 8.

Fig. 9.

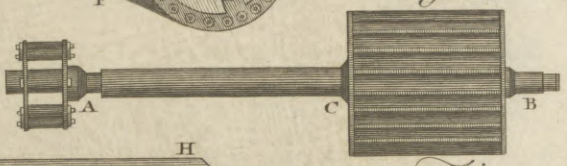


Fig. 7.

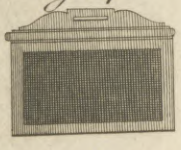
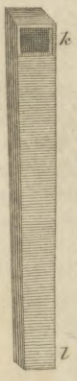


Fig. 3.



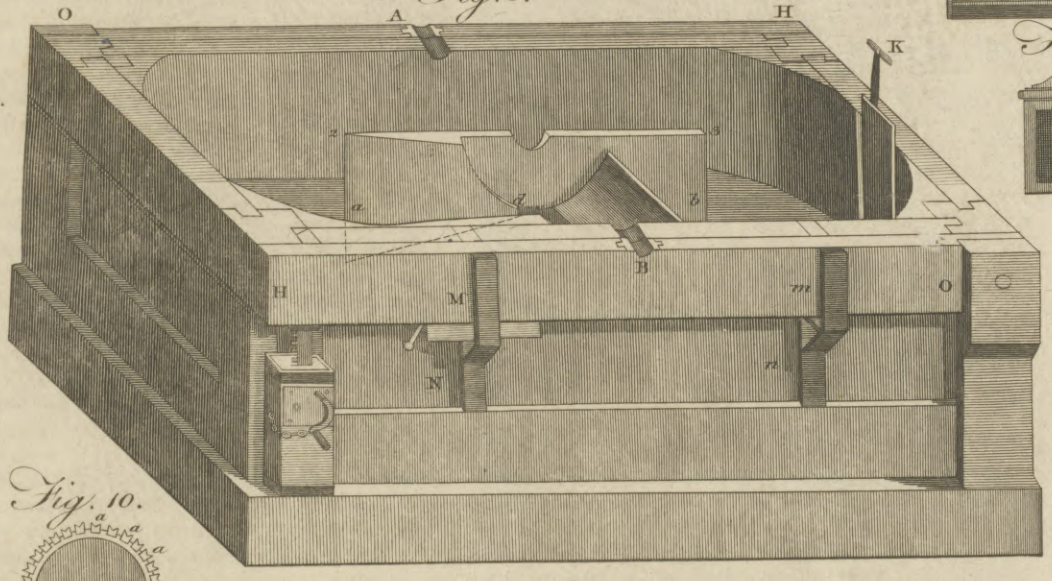
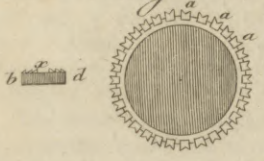
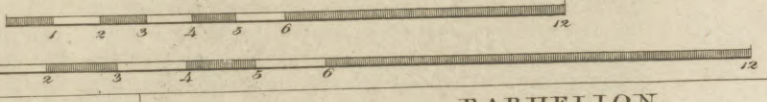


Fig. 10.





PARALLAX.

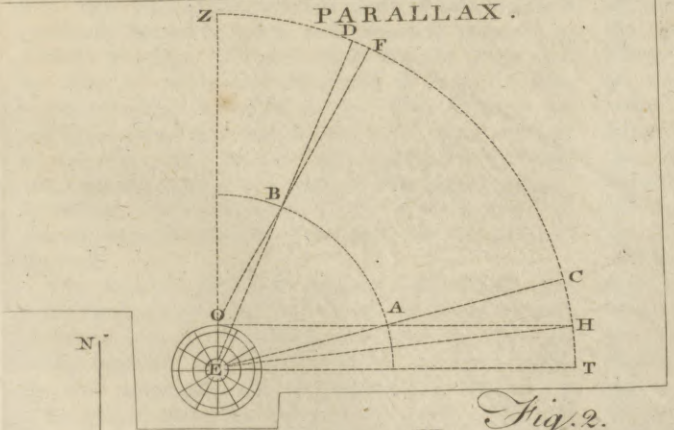
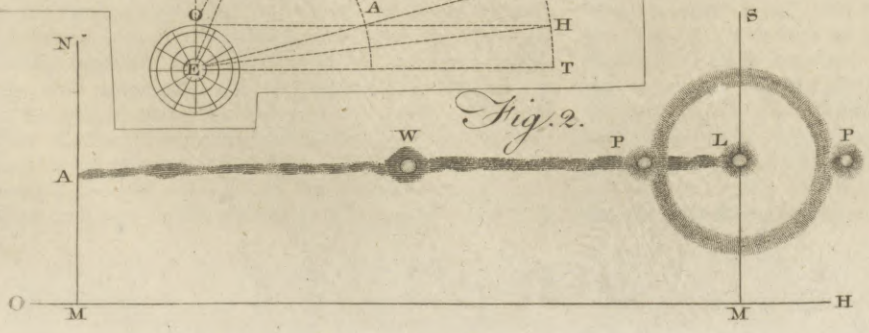
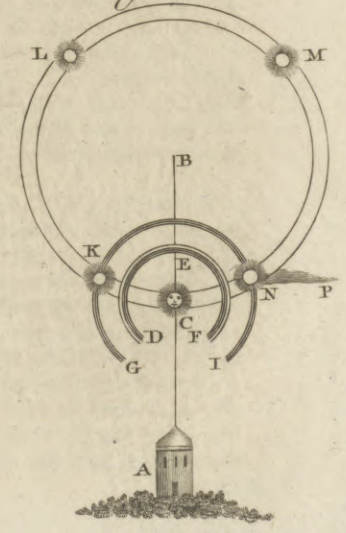


Fig. 2.



PARHELION.

Fig. 1.



A. Bell Prin. Wal. Sculptor. fecit.

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parts weighs nearly 30 hundred weight; and they find this neceſſary for cutting the rags, eſpecially if they have not been putrefied. In proportioning the rapidity to the reſiſtance, they have alſo diſcovered, that a ſlow motion is preferable to a rapid one. The rollers at Saardom, by calculation made from the different parts of the machinery, make about 68 revolutions in a minute; thoſe at Montargis about 166.—In Holland, too, this trituration of the rags is divided into two diſtinct operations, performed by rollers conſtructed on different principles: the firſt of them, for cutting the rags and preparing for the other, is furniſhed with blades of ſteel without any moiſture, and with a conſiderable ſpace between them; the ſecond, intended to reduce the ſtuff to the proper conſiſtency, has a greater number of blades, compoſed of a mixture of braſs and copper. The mills with rollers are in every reſpect ſuperior to thoſe formerly in uſe with mallets. Two Dutch rollers of the conſtruction we have juſt now deſcribed will prepare as much ſtuff in the ſame time as 24 mallets; they require infinitely leſs room; they do it without putrefaction, and as they do it in leſs time, and with leſs water, they occaſion much leſs waſte of the ſtuff.

When the ſtuff is brought to perfection, it is conveyed into a general repoſitory, which ſupplies the vat from which the ſheets of paper are formed. This vat is made of wood, and generally about five feet in diameter, and two and a half an depth. It is kept in temperature by means of a grate introduced by a hole, and ſurrounded on the inſide of the vat with a caſe of copper. For fuel to this grate, they uſe charcoal or wood; and, frequently, to prevent ſmoke, the wall of the building comes in contact with one part of the vat, and the fire has no communication with the place where they make the paper.

Every vat is furniſhed on the upper part with planks, encloſed inwards, and even railed in with wood, to prevent any of the ſtuff from running over in the operation. Acroſs the vat is a plank which is called the *trepan*, pierced with holes at one of the extremities, and reſting on the planks which ſurround the vat.

The forms or moulds are compoſed of wire-cloth, and a moveable frame. It is with theſe that they fetch up the ſtuff from the vat, in order to form the ſheets of paper. The ſides of the form are made of oak, which is previouſly ſteeped in water, and otherwiſe prepared to prevent warping. The wire-cloth is made larger than the ſheet of paper, and the exceſs of it on all ſides is covered with a moveable frame. This frame is neceſſary to retain the ſtuff of which the paper is made on the cloth; and it muſt be exactly adapted to the form, otherwiſe the edges of the paper will be ragged and badly finiſhed. The wire-cloth of the form is varied in proportion to the fineneſs of the paper and the nature of the ſtuff.

The felts are pieces of woollen cloth ſpread over every ſheet of paper, and upon which the ſheets are laid, to detach them from the form, to prevent them from adhering together, to imbibe part of the water with which the ſtuff is charged, and to tranſmit the whole of it when placed under the action of the preſs. The two ſides of the felt are differently raiſed: that of which the hair is longeſt is applied to the ſheets which are laid down; and any alteration of this diſpoſition would produce a change in the texture of the paper. The ſtuff of which the felts are made ſhould be ſufficiently ſtrong, in order that it may be ſtretched exactly on the ſheets without forming into folds; and, at the ſame time, ſufficiently pliant to yield in every direction without injury to the wet paper. As the felts have to reſiſt the reiterated efforts of the preſs, it appears neceſſary that the warp be very ſtrong, of combed wool, and well twiſted. On the other hand, as they have to imbibe a certain quantity of water, and to return it, it is neceſſary that the woof be of carded wool, and drawn out into a ſlack thread.—Theſe are the utenſils, together with the preſs, which are uſed in the apartment where the ſheets of paper are formed.

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15 The fabrication of paper.

The vat being furniſhed with a ſufficient quantity of ſtuff and of water, two inſtruments are employed to mix them; the one of which is a ſimple pole, and the other a pole armed with a piece of board, rounded and full of holes. This operation is repeated as often as the ſtuff falls to the bottom. In the principal writing mills in England, they uſe for this purpoſe what is called a *hog*, which is a machine within the vat, that, by means of a ſmall wheel on the outſide, is made to turn conſtantly round, and keep the ſtuff in perpetual motion. When the ſtuff and water are properly mixed, it is eaſy to perceive whether the previous operations have been complete. When the ſtuff floats cloſe, and in regular flakes, it is a proof that it has been well triturated; and the parts of the rags which have eſcaped the rollers alſo appear.

After this operation the workman takes one of the forms, furniſhed with its frame, by the middle of the ſhort ſides, and fixing the frame round the wire-cloth with his thumbs, he plunges it obliquely four or five inches into the vat, beginning by the long ſide, which is neareſt to him. After the immerſion he raiſes it to a level: by theſe movements he fetches up on the form a ſufficient quantity of ſtuff; and as ſoon as the form is raiſed the water eſcapes through the wire-cloth, and the ſuperfluity of the ſtuff over the ſides of the frame. The fibrous parts of the ſtuff arrange themſelves regularly on the wire-cloth of the form, not only in proportion as the water eſcapes, but alſo as the workman favours this effect by gently ſhaking the form. Afterwards, having placed the form on a piece of board, the workman takes off the frame or deckle, and glides this form towards the coucher; who, having previouſly laid his felt, places it with his left hand in an inclined ſituation, on a plank fixed on the edge of the vat, and full of holes. During this operation the workman applies his frame, and begins a ſecond ſheet. The coucher ſeizes this inſtant, takes with his left hand the form, now ſufficiently dry, and laying the ſheet of paper upon the felt, returns the form by gliding it along the trepan of the vat.

They proceed in this manner, laying alternately a ſheet and a felt, till they have made ſix quires of paper, which is called a *poſt*; and this they do with ſuch ſwiftneſs, that, in many ſorts of paper, two men make upwards of 20 poſts in a day. When the laſt ſheet of the poſt is covered with the laſt felt, the workmen about the vat unite together, and ſubmit the whole heap to the action of the preſs. They begin at firſt to preſs it with a middling lever, and afterwards with a lever about fifteen feet in length. After this operation another perſon ſeparates the ſheets of paper from the felts, laying them

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in a heap; and ſeveral of theſe heaps collected together are again put under the preſs.

16 Grain of paper.

The ſtuff which forms a ſheet of paper is received, as we have already ſaid, on a form made of wire-cloth, which is more or leſs fine in proportion to the ſtuff, and ſurrounded with a wooden frame, and ſupported in the middle by many croſs bars of wood. In conſequence of this conſtruction, it is eaſy to perceive, that the ſheet of paper will take and preſerve the impreſſions of all the pieces which compoſe the form, and of the empty ſpaces between them.

The traces of the wire-cloth are evidently perceived on the ſide of the ſheet which was attached to the form, and on the oppoſite ſide they form an aſſemblage of parallel and rounded riſings. As in the paper which is moſt highly finiſhed the regularity of theſe impreſſions is ſtill viſible, it is evident that all the operations to which it is ſubmitted have chiefly in view to ſoften theſe impreſſions without deſtroying them.—It is of conſequence, therefore, to attend to the combination of labour which operates on theſe impreſſions. The coucher, in turning the form on the felt, flattens a little the rounded eminences which are in relievo on one of the ſurfaces, and occaſions at the ſame time the hollow places made by the wire-cloth to be partly filled up. Meanwhile the effort which is made in detaching the form, produces an infinite number of ſmall hairs on every protuberant part of the ſheet.

Under the action of the preſs, firſt with the felts and then without them, the perfecting of the grain of paper ſtill goes on. The veſtiges of the protuberances made by the wires are altogether flattened, and of conſequence the hollows oppoſite to them diſappear alſo; but the traces formed by the interſtices of the wire, in conſequence of their thickneſs, appear on both ſides, and are rounded by the preſs.

The riſings traced on each ſide of the paper, and which can be diſcovered by the eye on that which is moſt highly finiſhed, form what is called the *grain of paper*. The different operations ought to ſoften but not deſtroy it; which is effectually done by employing the hammer. This grain appears in the Dutch paper; which is a ſufficient proof, that though they have brought this part of the art to the greateſt perfection, they have not employed hammers, but more ſimple and ingenious means. The grain of paper is often disfigured by the felts when they are too much uſed, or when the wool does not cover the thread. In this caſe, when the paper is ſubmitted to the preſs, it takes the additional traces of the warp and the woof, and compoſes a ſurface extremely irregular.

The paper, the grain of which is highly ſoftened, is much fitter for the purpoſes of writing than that which is ſmoothed by the hammer: on the other hand, a coarſe and unequal grain very much oppoſes the movements of the pen; as that which is beat renders them very uncertain. The art of making paper, therefore, ſhould conſiſt in preſerving, and at the ſame time in highly ſoftening, the grain: the Dutch have carried this to the higheſt perfection.

17 Exchange.

The exchange ſucceeds the operation laſt deſcribed. It is conducted in a hall contiguous to the vat, ſupplied with ſeveral preſſes, and with a long table. The workman arranges on this table the paper, newly fabricated, into heaps; each heap containing eight or ten of thoſe laſt under the preſs, kept ſeparate by a woollen felt. The preſs is large enough to receive two of them at once, placed the one at the other's ſide. When the compreſſion is judged ſufficient, the heaps of paper are carried back to the table, and the whole turned ſheet by ſheet, in ſuch a manner that the ſurface of every ſheet is expoſed to a new one; and in this ſituation they are again brought under the preſs. It is in conducting theſe two operations ſometimes to four or five times, or as often as the nature of the paper requires, that the perfection of the Dutch plan conſiſts. If the ſtuff be fine, or the paper ſlender, the exchange is leſs frequently repeated. In this operation it is neceſſary to alter the ſituation of the heaps, with regard to one another, every time they are put under the preſs; and alſo, as the heaps are higheſt toward the middle, to place ſmall pieces of felt at the extremities, in order to bring every part of them under an equal preſſure. A ſingle man with four or five preſſes may exchange all the paper produced by two vats, provided the previous preſſing at the vats be well performed. The work of the exchange generally laſts about two days on a given quantity of paper.

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When the paper has undergone theſe operations, it is not only ſoftened in the ſurface, but better felted, and rendered more pliant in the interior parts of the ſtuff. In ſhort, a great part of the water which it had imbibed in the operation of the vat is diſſipated. By the felting of paper is underſtood the approximation of the fibres of the ſtuff, and their adhering more cloſely together. The paper is felted in proportion as the water eſcapes; and this effect is produced by the management and reiterated action of the preſs. Were it not for the gradual operation of the preſs, the paper would be porous and compoſed of filaments adhering cloſely together. The ſuperiority of the Dutch over the French paper depends almoſt entirely on this operation.

If the ſheets of paper are found to adhere together, it is a proof that the buſineſs of the preſs has been badly conducted. To avoid this inconveniency, it is neceſſary to bring down the preſs at firſt gently, and by degrees with greater force, and to raiſe it as ſuddenly as poſſible. By this means the water, which is impelled to the ſides of the heaps, and which has not yet eſcaped, returns to the centre; the ſheets are equally dry, and the operation executed without difficulty.

According to the ſtate of dryneſs in which the paper is found when it comes from the apartment of the vat, it is either preſſed before or after the firſt exchange. The operation of the preſs ſhould be reiterated and managed with great care; otherwiſe, in the ſoft ſtate of the paper, there is a danger that its grain and tranſparency be totally deſtroyed. Another eſſential principle to the ſucceſs of the exchange is, that the grain of the paper be originally well raiſed. For this purpoſe the wire cloth of the Dutch forms is compoſed of a rounder wire than thoſe uſed in France, by which they gain the greateſt degree of tranſparency, and are in no danger of deſtroying the grain. Beſides this, the Dutch take care to proportion the wires even where the forms are equal to the thickneſs of the paper.

Almoſt every kind of paper is conſiderably improved by the exchange, and receives a degree of perfection which renders it more agreeable in the uſe. But it is neceſſary to obſerve at the ſame time, that all papers

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are not equally ſuſceptible of this melioration; on the contrary, if the ſtuff be unequal, dry, or weakened by the deſtruction of the fine parts, it acquires nothing of that luſtre and ſoftneſs, and appearance of velvet, which the exchange gives to ſtuffs properly prepared.

18 Of the drying of paper.

The ſheds for drying the paper are in the neighbourhood of the paper mill; and are furniſhed with a vaſt number of cords, upon which they hang the ſheets both before and after the ſizing. The ſheds are ſurrounded with moveable lattices, to admit a quantity of air ſufficient for drying the paper. The cords of the ſhed are ſtretched as much as poſſible; and the paper, four or five ſheets of it together, is placed on them by means of a wooden inſtrument reſembling a pickaxe. The principal difficulty in drying the paper, conſiſts in gradually admitting the external air, and in preventing the cords from imbibing moiſture. With regard to the firſt of theſe, the Dutch uſe very low ſheds, and conſtruct their lattices with great exactneſs. By this means the Dutch paper is dried equally, and is extremely ſupple before the ſizing. They prevent the cords from imbibing the water by covering them with wax. In uſing ſuch cords, the moiſture does not continue in the line of contact between the paper and the cord, which prevents the ſheet from ſtretching in that particular place by its weight, and from the folds which the moiſture in the ſubſequent operations might occaſion. The Dutch alſo employ cords of conſiderable thickneſs, and place fewer of them under the ſheets; by which means they diminiſh the points of contact, and give a freer and more equal circulation to the air.

19 Of the ſizing of paper.

The ſize for paper is made of the ſhreds and pairings got from the tanners, curriers, and parchment makers. All the putrified parts and the lime are carefully ſeparated from them, and they are encloſed into a kind of baſket, and let down by a rope and pulley into the cauldron. This is a late invention, and ſerves two valuable purpoſes. It makes it eaſy to draw out the pieces of leather when the ſize is extracted from them by boiling, or eaſy to return them into the boiler if the operation be not complete. When the ſubſtance is ſufficiently extracted, it is allowed to ſettle for ſome time; and it is twice filtered before it is put into the veſſel into which they dip the paper.

Immediately before the operation, a certain quantity of alum is added to the ſize. The workman takes a handful of the ſheets, ſmoothed and rendered as ſupple as poſſible, in his left hand, dips them into the veſſel, and holds them ſeparate with his right, that they may equally imbibe the ſize. After holding them above the veſſel for a ſhort ſpace of time, he ſeizes on the other ſide with his right hand, and again dips them into the veſſel. When he has finiſhed ten or a dozen of theſe handfuls, they are ſubmitted to the action of the preſs. The ſuperfluous ſize is carried back to the veſſel by means of a ſmall pipe. The veſſel in which the paper is ſized is made of copper, and furniſhed with a grate, to give the ſize when neceſſary a due temperature; and a piece of thin board or felt is placed between every handful as they are laid on the table of the preſs.

The Dutch are very careful, in ſizing their paper, to have every ſheet in the ſame handful of equal dryneſs; becauſe it is found that the dry ſheets imbibe the ſize more ſlowly than thoſe which retain ſome degree of moiſture. They begin by ſelecting the *padges* in the drying houſe; and after having made them ſupple, and having deſtroyed the adherence between the ſheets, they ſeparate them into handfuls in proportion to the dryneſs, each of them containing that number which they can dip at one time. Beſides this precaution, they take care to apply two ſheets of brown paper of an equal ſize to every handful. This brown paper, firm, ſolid, and already ſized, is of uſe to ſupport the ſheets.

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As ſoon as the paper is ſized, it is the practice of ſome paper mills to carry it immediately to the drying houſe, and hang it, before it cools, ſheet by ſheet on the cords. The paper, unleſs particular attention be paid to the lattices of the drying-houſe, is apt to dry too faſt, whereby a great part of the ſize goes off in evaporation; or, if too ſlow, it falls to the ground. The Dutch drying-houſes are the beſt to prevent theſe inconveniences:—But the exchange after the ſizing, which is generally practiſed in Holland, is the beſt remedy. They begin this operation on the handfuls of paper, either while they are ſtill hot, or otherwiſe as they find it convenient. But, after the exchange, they are careful to allow the heaps to be altogether cold before they are ſubmitted to the preſs. Without this precaution, the ſize would either be wholly ſqueezed out by the preſs of the exchange, or the ſurface of the paper become very irregular. It is of conſequence that the paper, ſtill warm from the ſizing, grow gradually firm, under the operation of the exchange, in proportion as it cools. By this method it receives that varniſh which is afterwards brought to perfection under the preſs, and in which the excellency of the paper either for writing or drawing chiefly conſiſts. It is in conſequence of the exchanging and preſſing that the Dutch paper is ſoft and equal, and that the ſize penetrates into the body of it, and is extended equally over its ſurface.

The exchange after the ſizing ought to be conducted with the greateſt ſkill and attention, becauſe the grain of the paper then receives impreſſions which can never be eradicated. When the ſized paper is alſo exchanged, it is poſſible to hang more ſheets together on the cords of the drying-houſe. The paper dries better in this condition, and the ſize is preſerved without any ſenſible waſte, becauſe the ſheets of paper mutually prevent the rapid operation of the external air. And as the ſize has already penetrated into the paper, and is fixed on the ſurface, the inſenſible progreſs of a well conducted drying-houſe renders all the good effects more perfect in proportion as it is ſlowly dried.

If to theſe conſiderations be added the damage done to the paper in drying it immediately after the preſs of the ſizing room, whether it be done in raiſing the hairs by ſeparating the ſheets, or in cracking the ſurface, it is evident that the trouble of the ſecond exchange is infinitely overpaid by the advantage.

20 Of the finiſhing room.

When the paper is ſufficiently dry, it is carried to the finiſhing room, where it is preſſed, ſelected, examined, folded, made up into quires, and finally into reams.—It is here put twice under the preſs; firſt, when it is at its full ſize, and ſecondly, after it is folded.

The principal labour of this place conſiſts in aſſorting the paper into different lots, according to its quality and faults; after which it is made up into quires. The perſon who does this muſt poſſeſs great ſkill, and be capable of great attention, becauſe he acts as a check on thoſe who

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who separated the paper into different lots. He takes the sheets with his right hand, folds them, examines them, lays them over his left arm till he has the number requisite for a quire, brings the sides parallel to one another, and places them in heaps under the table. An expert workman, if proper care has been taken in assorting the lots, will finish in this manner near 600 quires in a day.

The paper is afterwards collected into reams of 20 quires each, and for the last time put under the press, where it is continued for 10 or 12 hours, or as long as the demand of the paper-mill will permit.

21 A new method of bleaching the rags or stuff.

A method has lately been discovered of bleaching the rags or stuff, which will undoubtedly be adopted everywhere in the preparation of writing paper, provided the expence of the process be not too great. This discovery was made by Scheele, M. Berthollet, and M. Chaptal. The first of these illustrious writers communicated to the Swedish Academy of Sciences an Essay on Manganese, containing a numerous series of experiments, intended to investigate the nature and properties of that substance. Among these experiments were several which pointed out a new state of the muriatic acid, or the acid distilled from sea-salt, otherwise known under the name of the *acid* or *spirit of sea-salt*. This state of the muriatic acid was produced by Mr Scheele, in consequence of putting the said acid into a retort or distilling vessel, along with the above-mentioned substance called *manganese*, and distilling over the acid into a proper receiver; it was found to have changed its nature and properties in a very remarkable manner, while at the same time the manganese remaining in the retort had suffered a very material alteration.

To the new state of the acid thus produced, in consequence of certain theoretic ideas which Mr Scheele entertained respecting the mutual action of the original muriatic acid and the manganese on each other during the process of distillation, he gave the name of *dephlogisticated muriatic acid*. Since the time of this original discovery, in consequence of certain changes which have occurred in the theory or philosophy of chemistry, this new state of the acid of sea salt has been called the *oxygenated muriatic acid*. Among many other properties of it discovered by Mr Scheele, the most remarkable was, that it destroyed the colour of every vegetable substance which was exposed to its action; or, in other words, it bleached them; or, in the language of the dyers, it discharged their colours; that is to say, whatever happened to be the colour of any vegetable body that was submitted to the action of the oxygenated or dephlogisticated muriatic acid, it always became white, or lost its colouring matter.

In the year 1786, Dr Beddoes, then professor of chemistry in the university of Oxford, published an English translation of the Chemical Essays of Mr Scheele; and thereby made known to the chemists of Great Britain the power of the oxygenated or dephlogisticated muriatic acid, to bleach or whiten vegetable substances, or to discharge or decompose their colours. But M. Berthollet, a celebrated chemist in France, and one of the members of the Academy of Sciences at Paris appears to have been the first who thought of rendering the above-recited discovery subservient to the purposes of manufacture.

In 1789, he published in the *Annales de Chimie* an essay calculated entirely for the use of manufacturers, by being divested of theoretic discussions; of which the title is, Method of Bleaching Linen or Cotton Cloths, Threads, and Yarns, by means of oxygenated Muriatic Acid, and of some other properties of that Liquor which may be useful in Manufactures." Art of Making Paper in Europe.

In the same work, and in the same year, M. Chaptal, another French chemist, published an account of some experiments, in which, among many other applications of the oxygenated muriatic acid to purposes useful in the economical arts, he gives information of having bleached or whitened coarse rags used by the paper-makers, so as greatly to improve the quality of the paper into which they were afterwards manufactured. His preparation of this bleaching liquor differs not from Berthollet's, which is as follows: "Take six ounces of manganese and sixteen ounces of sea-salt, both reduced to a fine powder; mix these accurately, and introduce them into a retort or distilling vessel: Then take twelve ounces of oil of vitriol and eight ounces of water, mixed together, and allowed to cool; add these to the other ingredients in the retort, and connect the retort with a cask or receiver capable of holding twenty-seven gallons and a half of water, but only containing twenty-five gallons, which is to be impregnated with the gas or vapour of the oxygenated muriatic acid; and proceed to distillation, first without and afterwards with a fire gradually raised, till the whole acid comes over."

Experiments have been made with this liquor both by some of the principal paper-makers in the neighbourhood of Edinburgh and by Messrs Clement and George Taylors of Maidstone in Kent. By the former it was found, that paper made of rags and pulp whitened in this manner, was superior to any other made of similar materials, not only in colour but in fineness of texture. By the latter, the excellence of the liquor was found to be so great, that probably having never heard of Scheele, Berthollet, and Chaptal, and conceiving themselves to be the first inventors of it, they obtained a patent for its exclusive use, which other manufacturers will doubtless disregard. It is not to be concealed, however, that, even with all the precautions which can possibly be taken at first, various circumstances of imperfection must necessarily remain to be removed by means of farther experience, both in the perfection of the bleaching process and the economy of its application to use; but for the attaining of this experience a short time will rarely be sufficient. The above account, it must appear, refers to the time when the bleaching of rags by this process was first introduced. The practice, we find is still (1808) successfully continued by some of the manufacturers in the vicinity of Edinburgh, and has been improved by using the bleaching salt (the hyperoxymuriate of lime), the right to the preparation of which is exclusively vested by patent in Messrs Tennant and Company of Glasgow.

Sect. II. *Of the different Kinds of Paper.*

22 Writing paper.

The paper proper for writing should be without knots, without any parts of the stuff not triturated, without folds, and without wrinkles, of a supple texture, its grain uniform and regular, softened in the exchange,

Different kinds of Paper.

exchange, and not deſtroyed by ſmoothing. The ground of this paper muſt be extremely white, or ſhaded with a very light blue, which adds to its natural ſplendor. It is of great importance that it be fully and equally ſized, otherwiſe the writing cannot be well finiſhed, and the turnings of the letters will be very imperfect. This paper ſhould be made from ſtuff not putrefied, which takes a better grain, receives more benefit from the exchange, is more equally ſized, and, finally, is leſs ſubject to folds and wrinkles in the different operations. To make paper peculiarly fit for durable writing, Dr Lewis recommends the impregnation of it with aſtringent materials. "It is obſervable (ſays he) that writings firſt begin to fade or change their colour on the back of the paper, where the larger ſtrokes have ſunk in, or are viſible through it; as if part of the irony matter of the vitriol was in a more ſubtile or diſſolved ſtate than the reſt, and ſunk further, on account of its not being fully diſengaged from the acid, or ſufficiently combined with the aſtringent matter of the galls. Hence, it ſhould ſeem probable, that if the paper was impregnated with aſtringent matter, the colour of the ink would be more durable. To ſee how far this notion was well founded, I dipt ſome paper in an infuſion of galls: and, when dry, repeated the dipping a ſecond and third time. On the paper thus prepared, and ſome that was unprepared, I wrote with different inks; ſeveral of which, that the effects might be more ſenſible, had an over-proportion of vitriol. The writings being expoſed to the weather till the beſt of the inks on the unprepared paper had faded and changed their colour, thoſe on the prepared paper were all found to retain their blackneſs. It is therefore recommended to the conſideration of the paper-makers, whether a particular kind of paper might not be prepared for thoſe uſes where the long duration of the writing is of principal importance, by impregnating it with galls or other aſtringents, in ſome of the operations it paſſes through before it receives the glazing; as, for inſtance, by uſing an aſtringent infuſion, inſtead of common water, in the laſt operation, when the matter is reduced into a pulp for being formed into ſheets. The browniſh hue which the paper receives from the galling, would not perhaps be any great obſtacle to its uſe; and, if the propoſal ſhould be thought worthy of being carried into execution, further inquiries may poſſibly diſcover the means of obviating the imperfection, and communicating aſtringency without colour."

23 For durable writing.

24 Paper fit for drawing, or for coloured maps.

The paper uſed for drawing, or for coloured maps, is in ſome mills made from one kind of white ſtuff, either fine or middling; in others, from a mixture of three or four kinds of ſtuff of different colours. The Dutch were not long ago almoſt wholly in poſſeſſion of this manufacture. The ſame qualities are neceſſary in this paper as in that for writing. The grain, however, muſt be a little more raiſed, although ſoftened by the exchange; for, without this grain, the pencil would leave with difficulty the traces of the objects. Great care is alſo neceſſary in the ſizing of this paper, that the drawing be neatly performed, and alſo that the ſinking of the ink or colours into the irregularities of the ſtuff be prevented.

25 Of furniture paper.

This paper is alſo made in greateſt perfection by ſtuffs not rotted. Theſe take a more even gloſs, and are in better condition to receive all the impreſſions of the painter. It is alſo neceſſary that furniture paper be well ſoftened, and ſubmitted to the exchange, to take more exactly the outlines of the figures. The French have carried this part of the manufacture of paper to the higheſt ſtate of perfection.

Different kinds of Paper.

26 Paſteboard uſed in the manufacture of woollen cloth.

The Britiſh and Dutch have had the greateſt ſucceſs in manufacturing paſteboard, which they make either from a ſingle maſs of ſtuff on the form, or from a collection of ſeveral ſheets paſted together. In both caſes, the ſheets of paſteboard are made of ſtuff not rotted, and triturated with rollers furniſhed with blades of well tempered ſteel. By the operation of the exchange, and ſmoothing continued for a long time, the Britiſh and Dutch obtain ſolid and ſmooth ſtuffs, which neither break under the folds of cloth nor adhere to them. The ſtuffs not putrefied have another advantage in this ſpecies of paſteboard, namely, that of reſiſting the action of heat, which they experience between the folds of cloth, without waſting or tarniſhing, and of conſequence they may be uſed for a long time.

27 Printing paper.

In England they have at leaſt equalled any other nation in the manufacture of this paper; and even in Scotland they have arrived to ſuch a degree of perfection in this art, that great part of what they manufacture is ſent into England. It requires to be made of a ſoft and equal ſtuff, without folds or wrinkles, of a natural whiteneſs, and with a ſhade of blue. It muſt be ſized leſs ſtrongly than writing paper, but ſufficiently well to give neatneſs to the characters. The paper, thus properly prepared, yields eaſily to the printing preſs, and takes a ſufficient quantity of ink. The ſtuff muſt be without greaſe, and wrought with that degree of ſlowneſs as to make it ſpread equally over the form, and take a neat and regular grain; without this the characters will not be equally marked in every part of the page; and the ſmalleſt quantity of greaſe renders the ſizing unequal and imperfect. Some artiſts with conſiderable ſucceſs, both to meliorate the grain, and to reduce the inequalities of the ſurface, have ſubmitted this paper to the exchange. And it is proper to add, that a moderate degree of exchanging and of preſſing may be of great ſervice after the ſheets are printed, to deſtroy the hollow places occaſioned by the preſs, and the relievo of the letters.

28 Paper for engraving.

Engraving requires a paper of the ſame qualities with the laſt mentioned, with reſpect to the ſtuff, which muſt be pure, without knots, and equally reduced; the grain uniform, and the ſheets without folds or wrinkles. To preſerve the grain, it is neceſſary that it be dried ſlowly in the loweſt place of the drying-houſe. If it is ſubmitted to the exchange, the effects of it muſt be moderated with the greateſt care, and the action of the two firſt preſſes muſt be equally diſtributed over the whole maſs, otherwiſe the inequality of the moiſture at the middle and ſides will expoſe it to wrinkles in the drying. The ſizing of this paper muſt alſo be moderate. Theſe circumſtances are neceſſary to make it receive with neatneſs all the ſoft and delicate touches of the plate.—The ſoft and yielding paper of Auvergne poſſeſſes all thoſe advantages; and accordingly a great quantity of this and of printing paper were formerly imported into Britain and Holland from France, where they ſtill continue to rot the materials from which they make en-

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graving paper. The wire wove frame, though but lately invented, is, we are told, peculiarly adapted to this kind of paper.

29 Paper for cards or any kind of painting on a ſmooth ſurface.

Paper for cards muſt be manufactured from a pretty firm ſtuff, in order to take that degree of ſmoothneſs which makes the cards glide eaſily over one another in uſing. For this reaſon the cardmakers reject every kind of paper which is ſoft and without ſtrength. This paper requires to be very much ſized, ſince the ſizing holds the place of varniſh, to which the ſmoothing gives a glazed and ſhining ſurface. To anſwer all theſe purpoſes, the rags require to be a little rotted, and the mallets ſtrongly armed with iron ſtuds. Formerly Angoumois was almoſt the only province in France which ſold card-paper to the Dutch and the other northern nations. The rags of Angoumois have the peculiar quality of not turning too ſoft in the putrefaction, and the mills of that province reduce them to ſtuff though they be not much putrefied. The French, we believe, excel every other nation in this branch of the manufacture of paper.

Sect. III. *Miſcellaneous Obſervations on Paper.*

30 To preſerve paper from ſinking.

To hinder paper from ſinking, take about the ſize of a nut of rock alum, diſſolve it in a glaſs of clear water, and apply it to the paper, which has not been ſufficiently ſized, with a fine ſponge. It is in this manner that the paper-manufacturers of Paris prepare the paper for drawing called *papiers laves*. When there is occaſion to write on a printed book, or on paper too freſh, it is ſufficient to mix a little gum with ordinary ink.

31 Paper varniſhed for writing.

To give to writing paper a brilliant varniſh, take that which is of an ordinary fineneſs, very ſmooth, without any kind of ſtain or hairs on its ſurface; ſtretch it on a ſmooth plank, and by means of a hare's foot cover it with a thin and equal layer of ſandarac finely powdered. Afterwards, if a whole ream is to be varniſhed, take eight ounces of rock alum and one ounce of white ſugarcandy; bring them to boil in ſix pints of water; and when the liquor is lukewarm, wet that ſide of the ſheet which has been covered with the ſandarac with a fine ſponge; lay the ſheets in a heap, one ſheet exactly above another; and ſubmit the ream to the preſs for the ſpace of twelve hours: hang them afterwards ſheet by ſheet on the cords of the drying-houſe; put them again under the preſs for ſome days to ſtretch them; and, finally, beat them with a bookbinder's mallet. This paper can only be uſed for three or four months after it is prepared.

32 Paper prepared for drawing.

Painters prepare their paper for drawing, and give it a dark ground, which ſpares them much labour of the pencil afterwards in thoſe places where ſhade is neceſſary. For this purpoſe, they take white paper and paſs a ſponge over it, which has imbibed water impregnated with ſoot, leaving the light places to be formed afterwards. They uſe alſo a kind of paper for drawing, which is called tainted paper. A light colour is paſſed over the whole ground, which deprives the paper of its original brightneſs, and makes the light places of the print appear more in relievo, and more luminous.

33 Paper prepared for copying a print.

The method moſt common and moſt convenient for copying a print, is to uſe oiled paper. The manner of preparing this paper is to take that which is thin and ſmooth, known commonly by the name of *ſerpent paper*, and moiſten it with a compoſition, two parts of the oil of walnuts and one part of the oil of turpentine mixed well together. A ſheet of paſteboard and a ſheet of paper are laid on a ſmooth table; above them are placed two ſheets of paper to be prepared; and a layer of the oil applied to the uppermoſt is ſufficient to penetrate both. This may be done to any number of ſheets, and a ſtrong ſheet of paſteboard is placed over the whole. The heap is afterwards ſubmitted to the preſs, under which it remains for two or three days till the oil be completely dry. Paper prepared in this manner ſerves to copy very readily and exactly all kinds of figures and plans; becauſe being altogether tranſparent, all the parts of the drawing, whether of light or ſhade, are eaſily diſtinguiſhed.

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34 Incombuſtible paper.

Beſides the paper made from the aſbeſtos, it is neceſſary for wrapping up gunpowder and valuable writings, to have a paper that will not eaſily take fire. The manner in which this is prepared is extremely ſimple. Ordinary paper is dipped into boiling liquid, conſiſting of three-fourths of water and one-fourth of diſſolved alum. This ſalt, which is not inflammable, covers the ſurface of the paper, and renders it in ſome meaſure incombuſtible.

35 A method of eraſing ink from paper.

In the ſeaſon of verjuice, a little of it diluted with water is ſufficient for obliterating any freſh ſpot of ink. The ſalt of the verjuice diſſolved in water anſwers the purpoſe equally well, and the ſalt of ſorrel or oxalic acid is alſo employed with this view. If the ſpots be dry, and the above acids are inſufficient to eradicate them, a little aquafortis diluted in water, and applied with the feather of a quill or a fine hair pencil, will make them entirely diſappear.

36 A method for taking oil ſtains out of paper.

Books and manuſcripts are ſometimes defaced by accidental ſtains with oil. To remove ſuch blemiſhes, burn ſheeps bones and reduce them to a fine powder; lay a quantity of this powder on each ſide of the ſtain; place it between two ſheets of white paper, and ſubmit it for twelve hours to the preſs. If the ſtains have not diſappeared, it will be neceſſary to reiterate the proceſs.

37 A method of making oiled paper take colours.

To make oiled papers take colours; mix with the colours a very ſmall quantity either of the gall of a pike or carp; and as theſe ſubſtances are of the nature of ſoap, they diſſolve the greaſe that is in the paper, and permit the colours to be ſpread over the ſurface.

38 To make emery paper.

Emery paper, which is employed for taking the ruſt from iron without waſting it, is made by impregnating coarſe paper with gummed water or any other tenacious ſubſtance, and then covering it over with the fineſt emery.

39 Staining or colouring of paper.

The colours proper for paper are not different from thoſe uſed for other ſubſtances, and are enumerated under the article COLOUR-*Making*. They are applied with ſoft bruſhes, after being tempered to a due degree with ſize or gum-water. If the paper on which they are to be laid is ſoft, ſo that the colours are apt to go through, it muſt alſo be ſized before they are laid on, or a proportionably larger quantity muſt be uſed along with the colours themſelves. If a conſiderable extent of the paper is to be done over with one colour, it

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it muſt receive ſeveral coatings, as thin as poſſible, letting each coat dry before another is put on, otherwiſe the colour will be unequal.

40 To gild paper.

Take yellow ochre, grind it with rain-water, and lay a ground with it upon the paper all over; when dry, take the white of eggs, beat it clear with white ſugarcandy, and ſtrike it all over: then lay on the leaf-gold; and when dry, poliſh it with a tooth. Some take ſaffron, boil it in water, and diſſolve a little gum with it; then they ſtrike it over the paper, lay on the gold; and, when dry, they poliſh it.

41 To ſilver paper after the Chineſe method without ſilver.

Take two ſcruples of clear glue made of neats leather, one ſcruple of white alum, and half a pint of clear water; ſimmer the whole over a ſlow fire, till the water is conſumed, or the ſteam ceaſes: Then, your ſheets of paper being laid on a ſmooth table, you dip a pretty large pencil into that glue, and daub it over as even as you can, repeating this two or three times: then ſift the powder of talc through a fine ſieve, made of horſe-hair or gauze, over it; and then hang it up to dry; and, when dry, rub off the ſuperfluous talc, which ſerves again for the ſame purpoſe. The talc you prepare in the following manner: Take fine white tranſparent Muſcovy talc; boil it in clear water for four hours; then take it off the fire, and let it ſtand ſo for two days: then take it out, waſh it well, and put it into a linen rag, and beat it to pieces with a mallet: to 10 pounds of talc add 3 pounds of white alum, and grind them together in a little hand-mill; ſift it through a gauze-ſieve; and being thus reduced to a powder, put it into water, and juſt boil it up: then let it ſink to the bottom, pour off the water from it, place the powder in the ſun to dry, and it will become of a hard conſiſtence. Beat this in a mortar to an impalpable powder, and keep it, for the uſe above mentioned, free from duſt.

42 White and coloured grounds for paper hangings.

The common grounds laid in water are made by mixing whiting with the common glovers ſize, and laying it on the paper with a proper bruſh in the moſt even manner. This is all that is required, where the ground is to be left white; and the paper being then hung on a proper frame till it be dry, is fit to be painted. When coloured grounds are required, the ſame method muſt be purſued, and the ground of whiting firſt laid; except in pale-colours, ſuch as ſtraw-colours or pink, where a ſecond coating may ſometimes be ſpared, by mixing ſome ſtrong colour with the whiting.

43 Method of painting the paper hangings.

There are three methods by which paper hangings are painted; the firſt by *printing* on the colours; the ſecond by uſing the *ſtencil*; and the third by laying them on with a *pencil*, as in other kinds of painting.

When the colours are laid on by printing, the impreſſion is made by wooden prints; which are cut in ſuch manner, that the figure to be expreſſed is made to project from the ſurface by cutting away all the other part; and this, being charged with the colours tempered with their proper vehicle, by letting it gently down on a block on which the colour is previouſly ſpread, conveys it from thence to the ground of the paper, on which it is made to fall more forcibly by means of its weight, and the effort of the arm of the perſon who uſes the print. It is eaſy to conclude, that there muſt be as many ſeparate prints as there are colours to be printed. But where there are more than one, great care muſt be taken, after the firſt, to let the print fall exactly in the ſame part of the paper as that which went before; otherwiſe the figure of the deſign would be brought into irregularity and confuſion. In common paper of low price, it is uſual, therefore, to print only the outlines, and lay on the reſt of the colours by ſtencilling; which both ſaves the expence of cutting more prints, and can be practiſed by common workmen, not requiring the great care and dexterity neceſſary to the uſing ſeveral prints.

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The manner of *ſtencilling* the colours is this. The figure, which all the parts of any particular colour make in the deſign to be painted, is to be cut out, in a piece of thin leather or oil-cloth, which pieces of leather or oil-cloth are called *ſtencils*; and being laid flat on the ſheets of paper to be printed, ſpread on a table or floor, are to be rubbed over with the colour, properly tempered, by means of a large bruſh. The colour paſſing over the whole is conſequently ſpread on thoſe parts of the paper where the cloth or leather is cut away, and give the ſame effect as if laid on by a print. This is nevertheleſs only practicable in parts where there are only detached maſſes or ſpots of colours: for where there are ſmall continued lines, or parts that run one into another, it is difficult to preſerve the connection or continuity of the parts of the cloth, or to keep the ſmaller corners cloſe down to the paper: and therefore, in ſuch caſes, prints are preferable. Stencilling is indeed a cheaper method of ridding coarſe work than printing: but without ſuch extraordinary attention and trouble as render it equally difficult with printing, it is far leſs beautiful and exact in the effect. For the outlines of the ſpots of colour want that ſharpneſs and regularity that are given by prints, beſides the frequent extralineations, or deviations from the juſt figure, which happen by the original miſplacing of the ſtencils, or the ſhifting the place of them during the operation.

Pencilling is only uſed in the caſe of nicer work, ſuch as the better imitations of the India paper. It is performed in the ſame manner as other paintings in water or varniſh. It is ſometimes uſed only to fill the outlines already formed by printing, where the price of the colour, or the exactneſs of the manner in which it is required to be laid on, render the ſtencilling or printing it leſs proper; at other times, it is uſed for forming or delineating ſome parts of the deſign, where a ſpirit of freedom and variety, not to be had in printed outlines, are deſired to be had in the work.

44 Management of the flock paper.

The paper deſigned for receiving the flock is firſt prepared with a varniſh-ground with ſome proper colour, or by that of the paper itſelf. It is frequently practiſed to print ſome moſaic, or other ſmall running figure in colours, on the ground, before the flock be laid on; and it may be done with any pigment of the colour deſired, tempered with varniſh, and laid on by a print cut correſpondently to that end.

The method of laying on the flock is this. A wooden print being cut, as is above deſcribed, for laying on the colour in ſuch manner that the part of the deſign which is intended for the flock may project beyond the reſt of the ſurface, the varniſh is put on a block covered with the leather or oil-cloth, and the print is to be uſed alſo in the ſame manner, to lay the varniſh on

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all the parts where the flock is to be fixed. The ſheet, thus prepared by the varniſhed impreſſion, is then to be removed to another block or table, and to be ſtrewed over with flock; which is afterwards to be gently compreſſed by a board, or ſome other flat body, to make the varniſh take the better hold of it: and then the ſheet is to be hung on a frame till the varniſh be perfectly dry; at which time the ſuperfluous part of flock is to be bruſhed off by a ſoft camel's-hair bruſh; and the proper flock will be found to adhere in a very ſtrong manner.

The method of preparing the flock is, by cutting woollen rags or pieces of cloth with the hand, by means of a large bill or chopping knife; or by means of a machine worked by a horſe-mill.

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There is a kind of counterfeit flock-paper, which, when well managed, has very much the ſame effect to the eye as the real, though done with leſs expence. The manner of making this ſort is, by laying a ground of varniſh on the paper; and having afterwards printed the deſign of the flock in varniſh, in the ſame manner as for the true; inſtead of the flock, ſome pigment, or dry colour, of the ſame hue with the flock required by the deſign, but ſomewhat of a darker ſhade, being well powdered, is ſtrewed on the printed varniſh, and produces nearly the ſame appearance.

PAP

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PAPER-Money is a term frequently made uſe of for bank-bills, which paſs currently in trade inſtead of gold and ſilver.

Concerning this ſpecies of currency, the national utility of which has been controverted by ſome, we have the following obſervations in Dr Smith's Treatiſe on the Wealth of Nations: "The ſubſtitution of paper in the room of gold and ſilver money replaces a very expenſive inſtrument of commerce with one much leſs coſtly, and ſometimes equally convenient. Circulation comes to be carried on by a new wheel, which it coſts leſs both to erect and maintain than the old one.

"When the people of any particular country have ſuch confidence in the fortune, probity, and prudence of a particular banker, as to believe that he is always ready to pay upon demand ſuch of his promiſſory notes as are likely at any time to be preſented to him, thoſe notes come to have the ſame currency as gold and ſilver money, from the confidence that ſuch money can at any time be had for them.

"A particular banker lends among his cuſtomers his own promiſſory notes, to the amount, we ſhall ſuppoſe, of 100,000l. As thoſe notes ſerve all the purpoſes of money, his debtors pay him the ſame intereſt as if he had lent them ſo much money. This intereſt is the ſource of his gain. Though ſome of thoſe notes are continually coming back upon him for payment, part of them continue to circulate for months and years together. Though he has generally in circulation, therefore, notes to the amount of 100,000l. 20,000l. in gold and ſilver may frequently be a ſufficient proviſion for anſwering occaſional demands. By this operation, therefore, 20,000l. in gold and ſilver perform all the functions which 100,000l. could otherwiſe have performed. Eighty thouſand pounds of gold and ſilver can therefore, in this manner, be ſpared from the circulation of the country; and if different operations of the ſame kind ſhould at the ſame time be carried on by many different banks and bankers, the whole circulation may be thus conducted with a fifth part only of the gold and ſilver.

"Let us ſuppoſe, for example, that the whole circulating money of ſome particular country amounted, at a particular time, to 1,000,000l. ſterling, that ſum being then ſufficient for circulating the whole annual produce of their land and labour. Let us ſuppoſe too, that, ſome time thereafter, different banks and bankers iſſued promiſſory notes, payable to the bearer, to the extent of 1,000,000l. reſerving in their different coffers 200,000l. for anſwering occaſional demands. There would remain, therefore, in circulation 800,000l. in gold and ſilver, and 1,000,000l. of bank-notes, or 1,800,000l. of paper and money together. But the annual produce of the land and labour of the country had before required only 1,000,000l. to circulate and diſtribute it to its proper conſumers, and that annual produce cannot be immediately augmented by thoſe operations of banking. One million, therefore, will be ſufficient to circulate it after them. The goods to be bought and ſold being preciſely the ſame as before, the ſame quantity of money will be ſufficient for buying and ſelling them. The channel of circulation, if I may be allowed ſuch an expreſſion, will remain preciſely the ſame as before. One million we have ſuppoſed ſufficient to fill that channel. Whatever, therefore, is poured into it beyond this ſum, cannot run in it, but moſt overflow. One million eight hundred thouſand pounds are poured into it. Eight hundred thouſand pounds, therefore, muſt overflow, that ſum being over and above what can be employed in the circulation of the country. But though this ſum cannot be employed at home, it is too valuable to be allowed to lie idle. It will therefore be ſent abroad, in order to ſeek that profitable employment which it cannot find at home. But the paper cannot go abroad; becauſe, at a diſtance from the banks which iſſue it, and from the country in which payment of it can be exacted by law, it will not be received in common payments. Gold and ſilver, therefore, to the amount of 800,000l. will be ſent abroad, and the channel of home circulation ſtill remain filled with 1,000,000l. of paper inſtead of 1,000,000l. of thoſe metals which filled it before.

"But though ſo great a quantity of gold and ſilver is thus ſent abroad, we muſt not imagine that it is ſent abroad for nothing, or that its proprietors make a preſent of it to foreign nations. They will exchange it for foreign goods of ſome kind or another, in order to ſupply the conſumption either of ſome other foreign country or their own.

"If they employ it in purchaſing goods in one foreign country in order to ſupply the conſumption of another,

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another, or in what is called the *carrying trade*, whatever profit they make will be an addition to the neat revenue of their own country. It is like a new fund, created for carrying on a new trade; domeſtic buſineſs being now tranſacted by paper, and the gold and ſilver being converted into a fund for this new trade.

"If they employ it in purchaſing foreign goods for home conſumption, they may either firſt purchaſe ſuch goods as are likely to be conſumed by idle people who produce nothing, ſuch as foreign wines, foreign ſilks, &c.; or, ſecondly, they may purchaſe an additional ſtock of materials, tools, and proviſions, in order to employ an additional number of induſtrious people, who reproduce, with a profit, the value of their annual conſumption.

"So far as it is employed in the firſt way, it promotes prodigality, increaſes expence and conſumption without increaſing production, or eſtabliſhing any permanent fund for ſupporting that expence, and is in every reſpect hurtful to the ſociety.

"So far as it is employed in the ſecond way, it promotes induſtry; and though it increaſes the conſumption of the ſociety, it provides a permanent fund for ſupporting that conſumption, the people who conſume, reproducing, with a profit, the whole value of their annual conſumption. The groſs revenue of the ſociety, the annual produce of their land and labour, is increaſed by the whole value which the labour of thoſe workmen adds to the materials upon which they are employed; and their neat revenue by what remains of this value, after deducting what is neceſſary for ſupporting the tools and inſtruments of their trade.

"That the greater part of the gold and ſilver which, being forced abroad by thoſe operations of banking, is employed in purchaſing foreign goods for home conſumption, is and muſt be employed for purchaſing thoſe of this ſecond kind, ſeems not only probable, but almoſt unavoidable. Though ſome particular men may ſometimes increaſe their expence very conſiderably, though their revenue does not increaſe at all, we may be aſſured that no claſs or order of men ever does ſo; becauſe, though the principles of common prudence do not always govern the conduct of every individual, they always influence that of the majority of every claſs or order. But the revenue of idle people, conſidered as a claſs or order, cannot in the ſmalleſt degree be increaſed by thoſe operations of banking. Their expence in general, therefore, cannot be much increaſed by them, though that of a few individuals among them may, and in reality ſometimes is. The demand of idle people, therefore, for foreign goods, being the ſame, or very nearly the ſame, as before, a very ſmall part of the money, which being forced abroad by thoſe operations of banking, is employed in purchaſing foreign goods for home conſumption, is likely to be employed in purchaſing thoſe for their uſe. The greater part of it will naturally be deſtined for the employment of induſtry, and not for the maintenance of idleneſs.

"When we compute the quantity of induſtry which the circulating capital of any ſociety can employ, we muſt always have regard to thoſe parts of it only which conſiſt in proviſions, materials, and finiſhed work: the other, which conſiſts in money, and which ſerves only to circulate thoſe three, muſt always be deducted. In order to put induſtry into motion, three things are requiſite; materials to work upon, tools to work with, and the wages or recompence for the ſake of which the work is done. Money is neither a material to work upon, nor a tool to work with; and though the wages of the workman are commonly paid to him in money, his real revenue, like that of all other men, conſiſts, not in the money, but in the money's worth; not in the metal pieces, but in what can be got for them.

"The quantity of induſtry which any capital can employ, muſt evidently be equal to the number of workmen whom it can ſupply with materials, tools, and a maintenance ſuitable to the nature of the work. Money may be requiſite for purchaſing the materials and tools of the work, as well as the maintenance of the workmen. But the quantity of induſtry which the whole capital can employ, is certainly not equal both to the money which purchaſes, and to the materials, tools, and maintenance, which are purchaſed with it; but only to one or other of thoſe two values, and to the latter more properly than to the former.

"When paper is ſubſtituted in the room of gold and ſilver money, the quantity of the materials, tools, and maintenance, which the whole circulating capital can ſupply, may be increaſed by the whole value of gold and ſilver which uſed to be employed in purchaſing them. The whole value of the great wheel of circulation and diſtribution is added to the goods which are circulated and diſtributed by means of it. The operation, in ſome meaſure, reſembles that of the undertaker of ſome great work, who, in conſequence of ſome improvement in mechanics, takes down his old machinery, and adds the difference between its price and that of the new to his circulating capital, to the fund from which he furniſhes materials and wages to his workmen.

"What the proportion is which the circulating money of any country bears to the whole value of the annual produce circulated by means of it, it is perhaps impoſſible to determine. It has been computed by different authors at a fifth, at a tenth, at a twentieth, and at a thirtieth part of that value. But how ſmall ſoever the proportion which the circulating money may bear to the whole value of the annual produce, as but a part, and frequently but a ſmall part, of that produce, is ever deſtined for the maintenance of induſtry, it muſt always bear a very conſiderable proportion to that part. When, therefore, by the ſubſtitution of paper, the gold and ſilver neceſſary for circulation is reduced to perhaps a fifth part of the former quantity, if the value of only the greater part of the other four fifths be added to the funds which are deſtined for the maintenance of induſtry, it muſt make a very conſiderable addition to the quantity of that induſtry, and conſequently to the value of the annual produce of land and labour.

"That part of his capital which a dealer is obliged to keep by him unemployed, for anſwering occaſional demands, is ſo much dead ſtock, producing nothing either to him or to his country. The judicious operations of banking enable him to make it active and productive. The gold and ſilver money which circulates in any country, and by means of which the produce of its land and labour is annually circulated and diſtributed to the proper conſumers, is, in the ſame manner as the ready money of the dealer, all dead ſtock. It is

Paper Money || Papier.

is a very valuable part of the capital of the country, which produces nothing to the country. The judicious operations of banking, by fubftituting paper in the room of a great part of it, enables the country to make a great part of this dead ſtock active and productive. The gold and ſilver money which circulates in any country, may very properly be compared to a highway, which, while it circulates and carries to market all the graſs and corn of the country, produces itſelf not a ſingle pile of either. The judicious operations of banking, by providing, if I may be allowed ſo violent a metaphor, a ſort of waggon-way through the air, enable the country to convert, as it were, a great part of its highways into good paſtures and corn fields, and thereby to increaſe very conſiderably the annual produce of its land and labour. The commerce and induſtry of the country, however, it muſt be acknowledged, though they may be ſomewhat augmented, cannot be altogether ſo ſecure, when they are thus, as it were, ſuſpended upon the Dædalian wings of paper money, as when they travel about upon the ſolid ground of gold and ſilver.

"The whole paper money of every kind which can eaſily circulate in any country, never can exceed the value of the gold and ſilver, of which it ſupplies the place, or which (the commerce being ſuppoſed the ſame) would circulate there if there was no paper money. If twenty ſhilling notes, for example, are the loweſt paper money current in Scotland, the whole of that currency, which can eaſily circulate there, cannot exceed the ſum of gold and ſilver which would be neceſſary for tranſacting the annual exchanges of twenty ſhillings value and upwards, uſually tranſacted within that country. Should the circulating paper at any time exceed that ſum, as the exceſs could neither be ſent abroad, nor be employed in the circulation of the country, it muſt immediately return upon the banks to be exchanged for gold and ſilver. Many people would immediately perceive that they had more of this paper than was neceſſary for tranſacting their buſineſs at home, and as they could not ſend it abroad, they would immediately demand payment of it from the banks. When this ſuperfluous paper was converted into gold and ſilver, they could eaſily find a uſe for it by ſending it abroad; but they could find none while it remained in the ſhape of paper. There would immediately, therefore, be a run upon the banks to the whole extent of this ſuperfluous paper, and if they ſhowed any difficulty or backwardneſs in payment, to a much greater extent; the alarm which this would occaſion neceſſarily increaſing the run." See BANK and TRADE.

PAPER Office, an office in the palace of Whitehall, in which all the public writings, matters of ſtate and council, proclamations, letters, intelligences, negotiations abroad, and generally all deſpatches that paſs through the offices of the ſecretaries of ſtate, are lodged, by way of library.

PAPIER MACHE. This is a ſubſtance made of cuttings of white or brown paper, boiled in water, and beaten in a mortar, till they are reduced to a kind of paſte, and then boiled with a ſolution of gum arabic or of ſize, to give tenacity to the paſte, which is afterwards formed into different toys, &c. by preſſing it into oiled moulds. When dry, it is done over with a mixture of ſize and lamp black, and afterwards varniſhed. The black varniſh for theſe toys, according to Dr Lewis, is prepared as follows: ſome colophony, or turpentine boiled down till it becomes black and friable, is melted in a glazed earthen veſſel, and thrice as much amber in fine powder ſprinkled in by degrees, with the addition of a little ſpirit or oil of turpentine now and then: when the amber is melted, ſprinkle in the ſame quantity of farcocolla, continuing to ſtir them, and to add more ſpirit of turpentine, till the whole becomes fluid; then ſtrain out the clear through a coarſe hair bag, preſſing it gently between hot boards. This varniſh, mixed with ivory black in fine powder, is applied, in a hot room, on the dried paper paſte; which is then ſet in a gently heated oven, next day in a hotter oven, and the third day in a very hot one, and let ſtand each time till the oven grows cold. The paſte thus varniſhed is hard, durable, gloſſy, and bears liquors hot or cold.

Paphlagonia, Paphos.

PAPHLAGONIA, in *Ancient Geography*, a country of the Hither Aſia, beginning at Parthenius, a river of Bithynia, on the weſt, and extending in length to the Halys eaſtward, with the Euxine to the north, and Galatia to the ſouth. Pliny enlarges the limits on the weſt ſide to the river Billis, on this ſide the Parthenius. It is called *Pylæmenia* by ſome (Pliny). *Paphlagones*, the people, mentioned by Homer, and therefore of no ſmall antiquity. A ſuperſtitious and ſilly people (Lucian); a brave people (Homer); taking their name from Phaleg (Bocchart).

PAPHOS, in *Ancient Geography*, two adjoining iſlands on the weſt ſide of the iſland of Cyprus; the one called *Hallæ Paphos* (Strabo, Ptolemy, Pliny); the other *Nea Paphos;* and when mentioned without an adjunct, this latter is always underſtood. Both dedicated to Venus, and left undiſtinguiſhed by the poets (Virgil, Horace). Hence Venus is ſurnamed *Paphia. Paphii*, the people, (Coins, Stephanus). It was reſtored by Auguſtus, after a ſhock of an earthquake, and called *Auguſta* (Dio).

The abbé Mariti, in his Travels through Cyprus, gives the following account of the iſland of Paphos. "It is ſituated (ſays he) on the ſouthern ſide: it contained the celebrated temple of Venus; which, together with the city, was deſtroyed by an earthquake, ſo that the leaſt veſtige of it is not now to be ſeen. A lake in the neighbourhood, which even in ſummer overflows with ſtagnant and corrupted water, renders the air in ſome degree unwholeſome. On the weſtern coaſt is the new Paphos, called by ſome of the modern geographers *Baffos;* a name which is unknown in the iſland of Cyprus. That we may not poſitively aſcribe to the latter every thing that hiſtory tells us of Paphos in general, it may not be here improper to mention that it has been ſeveral times deſtroyed. This city had a port, where veſſels trading upon that coaſt ſtill caſt anchor: but this happens only in ſummer; for, being expoſed to every wind, it is extremely dangerous. The bottom of it is full of ſharp rocks; which ſometimes deſtroy the cables ſo much, that mariners are obliged to keep them afloat on the ſurface of the water, by means of empty caſks fixed to them at certain diſtances. In the neighbourhood there are two caſtles; one on the borders of the ſea, and the other on the ſummit of a little hill: but the latter is at preſent in ruins. The government of Paphos conſiſts of a digdaban or commiſſary; a cadi; and an aga, who preſides over the cuſtomhouſe. Of all the Chriſtian

edifices,

Paphos. edifices, there is none remaining but the church of St George, in which ſervice is performed by the Greek miniſters. The productions of this part of the iſland, which are all of an excellent quality, are ſilk, barley, and other kinds of grain. To diſcover the origin of the Old and New Paphos, would be carrying light into the midſt of the thickeſt darkneſs. When we have added conjecture to conjecture, we are ſtill in the ſame ſituation. As this is an attempt ſuperior to my abilities, I ſhall leave it to the divining, though uncertain, knowledge of our antiquaries. I muſt, however, obſerve, that there was here formerly a temple dedicated to Venus, which was entirely deſtroyed by an earthquake. In this iſland St Paul by his eloquence converted Sergius, a Roman proconſul. He here likewiſe conferred the deaconſhip on his diſciple and colleague Titus, who ſoon after ſuffered martyrdom. Paphos was an epiſcopal city in the time of the Luſignans; and it is ſtill the ſeat of a biſhop, who is a ſuffragan to the archbiſhop of Nicoſia. On the weſtern ſide of the iſland there are a great number of ſcattered villages; but they are not worthy of notice, being either abandoned or in ruins."

Mr Bruce informs us, that in the neighbourhood of this place many ſilver medals of excellent workmanſhip are dug up; they are, however, but of little eſtimation among the antiquarians, being chiefly of towns, of the ſize of thoſe found at Crete and Rhodes, and in all the iſlands of the Archipelago. There are ſome excellent Greek intaglios; generally upon better ſtones than uſual in the iſlands. This illuſtrious traveller informs us, that he has ſeen ſome heads of Jupiter, remarkable for buſhy hair and a beard, which were of excellent workmanſhip, and worthy of any price. All the inhabitants of the iſland are ſubject to fevers, but eſpecially thoſe in the neighbourhood of Paphos. The ſame traveller obſerves, that Cyprus was very long undiſcovered; for though ſhips had been ſailing on the Mediterranean 1700 years before Chriſt, and though the iſland is only a day's ſailing from the continent of Aſia on the north and eaſt, and little more from that of Africa on the ſouth, it was not known at the building of Tyre, a little before the Trojan war, that is, 500 years after the neighbouring ſeas had been navigated. It was covered with wood at its firſt diſcovery; and our author is of opinion, that it was not well known even at the time of building of Solomon's temple; becauſe we do not find that Hiram king of Tyre, though juſt in its neighbourhood, ever had recourſe to it for wood: though the carriage would undoubtedly have been eaſier from thence, than to have brought it down from the top of Mount Lebanon. Eratoſthenes informs us, that in ancient times the iſland was ſo overgrown with wood, that it could not to be tilled; ſo that they firſt cut down the timber to be uſed in the furnaces for melting ſilver and copper; that after this they built fleets with it: but finding even this inſufficient, they gave liberty to all ſtrangers to cut it down for whatever purpoſe they pleaſed; and not only ſo, but they gave them afterwards the property of the ground they had cleared. Matters are now quite altered; and the want of wood is a principal complaint in moſt parts of the iſland. About Acamas, however, on the weſt ſide of the iſland, the wood is ſtill thick and impervious, inhabited by large ſtags and wild boars of a monſtrous ſize. Mr Bruce was informed, that a live elephant had lately been ſeen there, but gave no credit to the account.

Papias || Papyrus.

PAPIAS, biſhop of Hieropolis, a city of Phrygia, was the diſciple of St John the Evangeliſt, and the companion of Polycarp, as St Jerome obſerves, and not of John the Ancient, as ſome other authors have maintained. He compoſed a work in five books, entitled *Expoſitions of the Diſcourſes of our Lord*, of which there are only ſome fragments now remaining. He it was who introduced the opinion of the Millenarians.

PAPILIO, the BUTTERFLY, a genus of inſects belonging to the order of lepidoptera. See ENTOMOLOGY *Index*.

PAPILIONACEOUS, among *Botaniſts*, an appellation given to the flowers of plants belonging to various claſſes, from their reſembling the wings of a butterfly.

PAPINIAN, a celebrated Roman lawyer of the third century, under the emperor Severus; who had ſo high an opinion of his worth, that he recommended his ſons Caracalla and Geta to his care. Caracalla having firſt murdered his brother, ordered Papinian to compoſe a diſcourſe to excuſe this murder to the ſenate and people; which when he refuſed to undertake, the brutal emperor ordered him to be beheaded; and his body was dragged through the ſtreets of Rome. Papinian wrote ſeveral treatiſes in the line of his profeſſion.

PAPISTS, are thoſe who believe the pope or biſhop of Rome to be the ſupreme paſtor of the univerſal church, who profeſs to believe all the articles of Pope Pius's creed, and who promiſe implicit obedience to the edicts of the church, eſpecially the decrees of the council of Trent. See POPE and TRENT.

PAPPENHEIM, a town of Germany, in the circle of Franconia, and capital of a county of the ſame name, with a caſtle, where the counts reſide. It is ſeated near the river Altmal, 17 miles north-weſt of Neuburg, and 32 ſouth of Nuremburg; and is ſubject to its own count. E. Long. 10. 51. N. Lat. 48. 58. The count of Pappenheim is hereditary marſhal of the empire, and performs his office at the coronation of the emperor.

PAPPUS, an eminent philoſopher of Alexandria, ſaid by Suidas to have flouriſhed under the emperor Theodoſius the Great, who reigned from A. D. 379 to 395. His writings ſhow him to have been a conſummate mathematician: Many of them are loſt; the reſt continued long in manuſcript, detached parts having only been occaſionally publiſhed in the laſt century, until Carolus Manoleſſius publiſhed his remains entire at Bologna, in 1660, in folio.

PAPPUS, in *Botany*, a ſoft downy ſubſtance that grows on the ſeeds of certain plants, as thiſtles, hawkweed, &c. ſerving to ſcatter and buoy them up in the air.

PAPYRUS, the famous reed from which was made the far-famed paper of Egypt. Before entering on the deſcription of the papyrus, it is natural to ſay a word or two on the opinion generally received in Europe concerning the loſs of this plant. Suppoſing this loſs poſſible, the date of it muſt be fixed at no diſtant period; for it is not 200 years ſince Guilandin and Proſper Alpin obſerved the papyrus on the banks of the

Papyrus. the Nile. Guilandin ſaw the inhabitants of the country eating the inferior and ſucculent part of the ſtem in the manner of the ancients; a fact which alone ſhows it to be the papyrus, and of which other travellers ſeem not to have availed themſelves. This practice, together with thoſe related by Proſper Alpin, are ſufficient to convince us, that this plant is not wholly uſeleſs, although it is not now employed in the fabrication of paper. The alteration on the ſoil of Egypt, and on the methods of agriculture, have in all probability rendered this plant leſs common; but cauſes altogether local could not occaſion the deſtruction of the papyrus, eſpecially as its reſidence in the marſhes would prevent their operation. But it is needleſs to reaſon from probabilities or analogy: Mr Bruce not only ſaw the papyrus growing both in Egypt and Abyſſinia, but actually made paper of it in the manner in which it was made by the ancients. He tells us likewiſe, that, ſo far from any part of it being uſeleſs, the whole plant is at this day uſed in Abyſſinia for making boats, a piece of the acacia tree being put in the bottom to ſerve as a keel. That ſuch were the boats of ancient Egypt, we know from the teſtimony of Pliny, who informs us, that the plants were firſt ſewed together, and then gathered up at ſtem and ſtern, and tied faſt to the keel: "Conſeritur bibula Memphitis cymba papyro."

Appendix to Bruce's Travels.

"The bottom, root, or woody part of this plant was likewiſe of ſeveral uſes before it turned abſolutely hard; it was chewed in the manner of liquorice, having a conſiderable quantity of ſweet juice in it. This we learn from Dioſcorides; it was, I ſuppoſe, chewed, and the ſweetneſs ſucked out in the ſame manner as is done with ſugar cane. This is ſtill practiſed in Abyſſinia, where they likewiſe chew the root of the Indian corn, and of every kind of cyperus: and Herodotus tells us, that about a cubit of the lower part of the ſtalk was cut off, and roaſted over the fire, and eaten.

"From the ſcarcity of wood, which was very great in Egypt, this lower part was likewiſe uſed in making cups, moulds, and other neceſſary utenſils: we need not doubt, too, one uſe of the woody part of this plant was, to ſerve for what we call *boards* or *covers* for binding the leaves, which were made of the bark; we know that this was anciently one uſe of it, both from Alcæus and Anacreon."

The papyrus, ſays Pliny, grows in the marſhes of Egypt, or in the ſtagnant places of the Nile, made by the flowing of that river, provided they are not beyond the depth of two cubits. Its roots are tortuous, and in thickneſs about four or five inches: its ſtem is triangular, riſing to the height of ten cubits. Proſper Alpin gives it about ſix or ſeven cubits above the water; the ſtem tapers from the bottom, and terminates in a point. Theophraſtus adds, that the papyrus carries a top or plume of ſmall hairs, which is the thyrſus of Pliny. Guilandin informs us, that its roots throw to the right and left a great number of ſmall fibres, which ſupport the plant againſt the violence of the wind, and againſt the waters of the Nile. According to him, the leaves of the plant are obtuſe, and like the typha of the marſhes. Mr Bruce, on the other hand, aſſures us, that it never could have exiſted in the Nile. "Its head (ſays he) is too heavy: and in a plain country the wind muſt have had too violent a hold of it. The ſtalk is ſmall and feeble, and withal too tall; the root too ſhort and ſlender to ſtay it againſt the violent preſſure of the wind and current; therefore I do conſtantly believe it never could be a plant growing in the river Nile itſelf, or in any very deep or rapid river;" but in the caliſhes or places where the Nile had overflowed and was ſtagnant. Papyrus.

The Egyptians made of this plant paper fit for writing (ſee PAPER), which they call βίβλος or *philuria*, and alſo χαρτης, and hence the Latin *charta*; for in general the word *charta* is uſed for the paper of Egypt.

The papyrus was produced in ſo great quantities on the banks of the Nile, that Caſſiodorus (lib. xi. 38.) compares it to a foreſt. There, ſays he, riſes to the view, this foreſt without branches, this thicket without leaves, this harveſt of the waters, this ornament of the marſhes. Proſper Alpin is the firſt who gives us a plate of the papyrus, which the Egyptians call *berdi*. This correſponds in ſome degree with the deſcription of the plant mentioned by Theophraſtus; but the beſt drawing of it has been given by Mr Bruce.

The ancient botaniſts placed the papyrus among the graminous plants or dog graſs; ignorant of the particular kind to which it belonged, they were contented to ſpecify it under the name of *papyrus*, of which there were two kinds, that of Egypt, and that of Sicily. The moderns have endeavoured to ſhow, that theſe two plants are one and the ſame ſpecies of cyperus. It is under this genus that they are found in the catalogues and deſcriptions of plants publiſhed ſince the edition of Morriſon's work, where the papyrus is called *cyperus niloticus vel Syriacus maximus papyraceus*.

In the manuſcripts of the letters and obſervations of M. Lippi phyſician at Paris, who accompanied the envoy of Louis XIV. to the emperor of Abyſſinia, we find the deſcription of a cyperus which he had obſerved on the banks of the Nile in 1704. After having deſcribed the flowers, he ſays that many ears covered with young leaves are ſupported by a pretty long pedicle; and that many of thoſe pedicles, equally loaded and coming from one joint, form a kind of paraſol. The diſk of this paraſol is ſurrounded with a quantity of leaves which form a crown to the ſtem which ſupports it. The ſtem is a pretty long priſm, the corners of which are a little rounded; and the leaves, not at the top but at the ſide, are formed like the blade of a ſword; the roots are black and full of fibres; and this plant is called *cyperus Niliacus major, umbella multiplici*.

The ſame Lippi deſcribes another kind which riſes not ſo high: the ſtem and leaves correſpond with the former, but the ears form rather a kind of head than any thing like the ſpreading of an umbrella; this head was very ſoft, ſhining, and gilded, rich and airy, much loaded, ſupported by pedicles which were joined together at the bottom like the knitting of a paraſol. It is called by him *cyperus Niliacus major aurea, diviſa panicula*. Theſe two kinds of cyperus have a marked reſemblance in their leaves, their ſtem, their foliage, and the marſhy places where they grow. The only difference conſiſts in their ſize, and in the poſition of the ears, which ſerve to diſtinguiſh them; and they ſeem to bear a reſemblance to the papyrus and the ſari, deſcribed

Papyrus. described by ancient authors. The firſt is perhaps the papyrus, and the ſecond the ſari; but this is only conjecture.

The papyrus, which grew in the waters, is ſaid to have produced no ſeed; but this Mr Bruce very properly calls an abſurdity. "The form of the flower (ſays he) ſufficiently indicates, that it was made to reſolve itſelf into the covering of one, which is certainly very ſmall, and by its exalted ſituation and thickneſs of the head of the flower, ſeems to have needed the extraordinary covering it has had to protect it from the violent hold the wind muſt have had upon it. For the ſame reaſon, the bottom of the filaments compoſing the head are ſheathed in four concave leaves, which keep them cloſe together, and prevent injury from the wind getting in between them." Its plume was compoſed of ſlender pedicles, very long, and ſomewhat like hair, according to Theophraſtus. The ſame peculiarity exiſts in the papyrus of Sicily; and the ſame is found to exiſt in another kind of papyrus ſent from Madagaſcar by M. Poivre, correſpondent of the Academy of Sciences.

It is impoſſible to determine whether the papyrus of Sicily was uſed in any way by the Romans. In Italy it is called *papero*, and, according to Ceſalpin, *pipero*. This papyrus of Sicily has been cultivated in the garden of Piſa; and if we can depend on the authority of Ceſalpin, who himſelf examined the plant, it is different from the papyrus of Egypt.

The papyrus, ſays he, which is commonly called *pipero* in Sicily, has a longer and thicker ſtem than the plant cyperus. It riſes ſometimes to four cubits; the angles are obtuſe, and the ſtem at the baſe is ſurrounded with leaves growing from the root; there are no leaves on the ſtem even when the plant is at the greateſt perfection, but it carries at the top a large plume which reſembles a great tuft of diſhevelled hairs; this is compoſed of a great number of triangular pedicles, in the form of reeds; at the extremity of which are placed the flowers, between two ſmall leaves of a reddiſh colour like the cyperus. The roots are woody, about the thickneſs of reeds, jointed, and they throw out a great number of branches which extend themſelves in an oblique direction. Theſe are ſcented ſomewhat like the cyperus, but their colour is a lighter brown; from the lower part iſſue many ſmall fibres, and from the higher a number of ſtems ſhoot up, which in proportion as they are tender contain a ſweet juice.

The plume of the papyrus of Sicily is pretty well deſcribed in a ſhort account of it in the ſecond part of the *Muſæum de Boccone*. This plume is a tuft or aſſemblage of a great number of long ſlender pedicles, which grow from the ſame point of diviſion, are diſpoſed in the manner of a paraſol, and which carry at the top three long and narrow leaves, from which iſſue other pedicles, ſhorter than the former, and terminating in ſeveral knots of flowers. Micheli, in his *Nova Plantarum Genera*, printed at Florence 1728, has given an engraving of one of the long pedicles in its natural length: it is ſurrounded at the baſe with a caſe of about one inch and a half in height; towards the extremity it carries three long and narrow leaves, and four pedicles, to which are fixed the knots of flowers. Every pedicle has alſo a ſmall caſe ſurrounding its baſe. In ſhort, we find in the *Groſio Graphia* of Scheuchzer a very particular deſcription of the plume of a kind of cyperus, which appears to be the Sicilian plant. From this account it appears that the papyrus of Sicily is well known to botaniſts. It were to be wiſhed that we had as particular a deſcription of the papyrus of Egypt; but meanwhile it may be obſerved, that theſe two plants have a near affinity to one another; they are confounded together by many authors; and according to Theophraſtus, the *ſari* and the *papyrus nilotica* have a decided character of reſemblance, and only differ in this, that the papyrus ſends forth thick and tall ſtems, which being divided into ſlender plates, are fit for the fabrication of paper; whereas the ſari has ſmall ſtems, conſiderably ſhorter, and altogether uſeleſs for any kind of paper. Papyrus.

The papyrus, which ſerved anciently to make paper, muſt not be confounded with the papyrus of Sicily, found alſo in Calabria; for, according to Strabo, the papyrus was to be found in no place excepting Egypt and India. The greateſt part of botaniſts have believed that the Sicilian plant is the ſame with the ſari of Theophraſtus; others have advanced that the papyrus of Egypt and the ſari were the ſame plant in two different ſtages of its exiſtence, or conſidered with reſpect to the greater or leſs height, which, according to them, might depend on the qualities of the ſoil, the difference of the climate, or other accidental cauſes. In proof of this, it is maintained, that there is an eſſential difference between the papyrus growing in the waters and the ſame plant growing on the banks of rivers and in marſhes. The firſt of theſe has thick and tall ſtems, and a plume in the form of a tuft of hair very long and ſlender, and without any ſeed: the ſecond differs from the firſt in all theſe particulars; it has a ſhorter and more ſlender ſtem, its plume is loaded with flowers, and of conſequence it produces ſeed. In whatever way we conſider theſe facts, it is ſufficient for us to know, that the difference between the papyrus and the ſari neither depends on climate, nor ſoil, nor on ſituation. The plants whoſe difference depended on theſe circumſtances, both grew in Egypt, and were both employed in the manufacture of paper. But it is an eſtabliſhed fact, that the ſari cannot be employed for this purpoſe.

Finally, The papyrus of Sicily began to be known by botaniſts in 1570, 1572, 1583, at which periods the works of Lobel, of Guilandin, and of Ceſalpin, firſt appeared. The ancients had no manner of knowledge of this plant. Pliny makes no mention of it in his Natural Hiſtory; from which it is evident that it was neither uſed in Rome nor in Sicily. If he had ſeen this plant, he muſt have been ſtruck with its reſemblance to the papyrus and the ſari, as they were deſcribed by Theophraſtus; and ſince he gives a particular deſcription of theſe laſt mentioned, he would have moſt naturally hinted at their conformity to the Sicilian papyrus.

Among many dried plants collected in the Eaſt Indies by M. Poivre, there is a kind of papyrus very different from that of Sicily. It carries a plume compoſed of a conſiderable tuft of pedicles, very long, weak, ſlender, and delicate, like ſingle threads, terminating moſt frequently in two or three ſmall narrow leaves, without any knot of flowers between them; hence this plume muſt be altogether barren. Thoſe pedicles or threads are furniſhed with a pretty long membranous caſe, in

Papyrus.

which they are inſerted; and they iſſue from the ſame point of direction, in the manner of a paraſol. The plume, at its firſt appearance, is ſurrounded with leaves like the radii of a crown. The ſtem which ſupports it is, according to M. Poivre, about ten feet in height, where there is two feet under water; it is of a triangular form, but the angles are rounded; its thickneſs is about the ſize of a walking ſtaff which fills the hand.

The interior ſubſtance, although ſoft and full of fibres, is ſolid, and of a white colour. By this means the ſtem poſſeſſes a certain degree of ſtrength, and is capable of reſiſtance. It bends without breaking; and as it is extremely light, it ſerves in ſome ſort for a cane: The ſame M. Poivre uſed no other during a reſidence of ſeveral months at Madagaſcar. This ſtem is not of equal thickneſs in its whole length; it tapers inſenſibly from the thickeſt part towards the top. It is without knots, and extremely ſmooth. When this plant grows out of the waters, in places ſimply moiſt, it is much ſmaller, the ſtems are lower, and the plume is compoſed of ſhorter pedicles or threads, terminating at the top in three narrow leaves, a little longer than thoſe at the plume, when the plant grows in the water. From the baſe of theſe leaves iſſue ſmall knots of flowers, arranged as they are in the cyperus; but theſe knots are not elevated above the pedicles, they occupy the centre of the three leaves, between which they are placed, and form themſelves into a ſmall head. The leaves which ſpring from the root and the lower part of the ſtem reſemble exactly thoſe in the cyperus. This plant, which the inhabitants call *ſanga-ſanga*, grows in great abundance in their rivers and on their banks, but particularly in the river Tartas, near the Foule-point in Madagaſcar. The inhabitants of theſe cantons uſe the bark of this plant for mats; they make it alſo into ſails, into cordage for their fiſhing houſes, and into cords for their nets.

This kind of papyrus, ſo lately diſcovered, and different from the papyrus of Sicily by the diſpoſition of its flowers, ſhows, that there are two kinds of the cyperus which might eaſily be confounded with the papyrus of Egypt; whether we conſider, on the one hand, to what purpoſes the inhabitants of the places where they grow have made them ſubſervient; or, on the other compare their form, their manner of growth, and the points in which they reſemble each other. This compariſon can be eaſily made from the accounts which Pliny and Theophraſtus gave of the papyrus of Egypt, and by the figure and deſcription given by Proſper Alpin, after having obſerved the plant on the banks of the Nile. But if we can depend on the teſtimony of Strabo, who affirms that the papyrus is found nowhere but in Egypt and in India, it is perhaps poſſible that the papyrus of the iſle of Madagaſcar is the ſame with that of Egypt.

Whatever truth may be in this conjecture, the inhabitants of this iſland have never derived from it thoſe advantages which have immortalized the papyrus of Egypt. They have not made that celebrated paper, *quo uſu maxime humanitas, vita, conſtat et memoria.* This remarkable expreſſion of Pliny not only characterizes the Egyptian paper, but every kind which art and induſtry have ſubſtituted in its place.

PAR, in *Commerce*, ſignifies any two things equal in value. See EXCHANGE.

Par ‖ Paradiſe.

PARABLE, a fable or allegorical inſtruction, founded on ſomething real or apparent in nature or hiſtory, from which a moral is drawn by comparing it with ſomething in which the people are more immediately concerned; ſuch are the parables of Dives and Lazarus, of the Prodigal Son, of the Ten Virgins, &c. Dr Blair obſerves, that "of parables, which form a part of allegory, the prophetical writings are full; and if to us they ſometimes appear obſcure, we muſt remember, that in thoſe early times it was univerſally the mode throughout all the eaſtern nations to convey ſacred truths under myſterious figure and repreſentations."

PARABOLA. See *CONIC SECTIONS.*

PARABOLE. See ORATORY, N° 84.

PARACELSUS, AURELIUS PHILIP THEOPHRASTUS BOMBASTUS DE HOHENHEIM, a famous phyſician, born at Einſidlen, a town in the canton of Schweitz in Switzerland. He was educated with great care by his father, who was the natural ſon of a prince, and in a little time made a great progreſs in the ſtudy of phyſic. He afterwards travelled into France, Spain, Italy, and Germany, in order to become acquainted with the moſt celebrated phyſicians. At his return to Switzerland, he ſtopped at Baſil, where he read lectures on phyſic in the German tongue. He was one of the firſt who made uſe of chemical remedies with ſucceſs, by which he acquired a very great reputation. Paracelſus gloried in deſtroying the method eſtabliſhed by Galen, which he believed to be very uncertain; and by this means drew upon himſelf the hatred of the other phyſicians. It is ſaid, that he boaſted of being able, by his remedies, to preſerve the life of man for ſeveral ages: but he himſelf experienced the vanity of his promiſes, by his dying at Saltzburg, in 1504, at 37 years of age according to ſome, and at 48 according to others. The beſt edition of his works is that of Geneva in 1658, in 3 vols. folio.

PARACENTESIS, an operation in ſurgery, commonly called *tapping*. See SURGERY.

PARACLET, the COMFORTER, a name given to the Holy Ghoſt.

PARADE, in a military ſenſe, the place where troops aſſemble or draw together, to mount guard, or for any other purpoſe.

PARADE, in fencing, implies the action of parrying or turning off any thruſt.

PARADISE, a term principally uſed for the garden of Eden, in which Adam and Eve were placed immediately upon their creation.

As to this terreſtrial paradiſe, there have been many inquiries about its ſituation. It has been placed in the third heaven, in the orb of the moon, in the moon itſelf, in the middle region of the air, above the earth, under the earth, in the place poſſeſſed by the Caſpian ſea, and under the arctic pole. The learned Huetius places it upon the river that is produced by the conjunction of the Tigris and Euphrates, now called the *river of the Arabs*, between this conjunction and the diviſion made by the ſame river before it falls into the Perſian ſea. Other geographers have placed it in Armenia, between the ſources of the Tigris, the Euphrates, the Araxes, and the Phaſis, which they ſuppoſe to be the four rivers deſcribed

Paradiſe. deſcribed by Moſes. But concerning the exact place we muſt neceſſarily be very uncertain, if indeed it can be thought at all to exiſt at preſent, conſidering the many changes which have taken place on the ſurface of the earth ſince the creation.

Phyſico-Theol. Lectures. "Learned men (ſays Mr Miln *) have laboured to find out the ſituation of Paradiſe, which ſeems to be but a vague and uncertain inquiry; for the Moſaic deſcription of it will not ſuit any place on the preſent globe. He mentions two rivers in its vicinity, viz. Piſon and Gihon, of which no veſtiges can now be found. The other two ſtill remain, viz. the Hiddekel, ſuppoſed to be the Tigris, and the Euphrates, whoſe ſtreams unite together at a conſiderable diſtance above the Perſian gulf; in ſome part of which, it is highly probable the happy garden once lay (A). This gulf is eaſtward both of the land of Midian and the wilderneſs of Sinai; in one of which places Moſes wrote his hiſtory. But ſince the formation of this earth, it has undergone great changes from earthquakes, inundations, and many other cauſes. The garden, however, ſeems to have been a peninſula, for the way or entrance into it is afterwards mentioned. We are told that a 'river went out of it;' which, according to ſome, ſhould be rendered 'run on the outſide of it,' and thus gave it the form of a horſeſhoe: for had the Euphrates run through the middle of the garden, one half of it would have been uſeleſs to Adam, without a bridge or boat wherewith to have croſſed it."

The learned authors of the Univerſal Hiſtory, in their account of rarities natural and artificial in Syria, mention "a ſpot which is ſtill ſhown as the place where once ſtood the garden of Eden, or Terreſtrial Paradiſe. And indeed it is in all reſpects ſo beautiful and rich, and yields ſo delightful a proſpect from the adjacent hills, that there is hardly another place in the world that has a fairer title to the name it bears. Its proximity to Damaſcus, the capital of Syria, near the fountain head of the Jordan; its ſituation between the Tigris or Hiddekel, the Euphrates, the Phaſis or Phiſon, the Araxes or Gihon (which laſt has thoſe names from its vaſt rapidity above all other known rivers), its bordering upon the land of Chus, famed for its fine gold; all theſe and many other marks ſpecified by Moſes, together with its charming and ſurpriſing fruitfulneſs, and conſtant verdure, have induced a great number of commentators to ſettle that celebrated and ſo much ſought-after ſpot here, and to deem it the moſt valuable of all the natural rarities of this country.

Chriſtians, we preſume, need not be told, that however curious or amuſing this inquiry may be, the determination of it is of no importance, ſince we are all well aſſured that the celeſtial paradiſe is that place of pure and refined delight in which the ſouls of the bleſſed enjoy everlaſting happineſs. Paradiſe.

It may not be improper, however, in this place to give a deſcription of the paradiſe of the Mohammedans. The ſenſuality and abſurdity of that impoſtor muſt be apparent to all men. Their religion has no conſiſtency in its parts, and the deſcriptions of the future enjoyments of the faithful are miſerable inſtances of human weakneſs and folly.

"The paradiſe of the Mohammedans is ſaid by them to be ſituated above the ſeven heavens, or in the ſeventh, and next under the throne of God; and to expreſs the amenity of the place, they tell us that the earth of it is of the fineſt wheat flour, or of the pureſt muſk, or of ſaffron; and that its ſtones are pearls and jacinths, the walls of its buildings enriched with gold and ſilver, and the trunks of all its trees of gold, amongſt which the moſt remarkable is the tree *tuba*, or tree of happineſs. They pretend that this tree ſtands in the palace of Mohammed, though a branch of it will reach to the houſe of every true believer, loaded with pomegranates, dates, grapes, and other fruits of ſurpriſing bigneſs, and delicious taſtes, unknown to mortals. If a man deſires to eat of any particular kind of fruit, it will immediately be preſented to him; or if he chooſes fleſh, birds ready dreſſed will be ſet before him, and ſuch as he may wiſh for. They add, that this tree will ſupply the bleſſed, not only with fruit, but with ſilk garments alſo, and beaſts to ride on, adorned with rich trappings, all which will burſt forth from the fruit; and that the tree is ſo large, that a perſon mounted on the fleeteſt horſe would not be able to gallop from one end of its ſhade to the other in 100 years. Plenty of water being one of the greateſt additions to the pleaſantneſs of any place, the Alcoran often ſpeaks of the rivers of paradiſe as the principal ornament. Some of theſe rivers are ſaid to flow with water, ſome with milk, ſome with wine, and others with honey: all of them have their ſources in the root of this tree of happineſs; and, as if theſe rivers were not ſufficient, we are told that the garden of this paradiſe is alſo watered by a great number of leſſer ſprings and fountains, whoſe pebbles are rubies and emeralds, their earth of camphor, their beds of muſk, and their ſides of ſaffron. But all theſe glories will be eclipſed by the reſplendent and exquiſite beauty of the girls of paradiſe, the enjoyment of whoſe company will conſtitute the principal felicity of the faithful. Theſe (they ſay) are not formed of clay, as mortal women, but of pure muſk; and are, as their prophet often affirms in his Alcoran, free from all the natural defects and inconveniences incident to the ſex. Being alſo of the

(A) "*God* (we are told) *placed at the eaſt of the garden of Eden cherubims and a flaming ſword, which turned every way, to keep the way of the tree of life.* In Scripture, the extraordinary judgements of God are ſaid to be executed by his angels, who are ſometimes compared to flames of fire. Therefore the cherubim and the flaming ſword may probably mean nothing more than that a large portion of ground on the eaſtward of Paradiſe was ſet on fire during the above awful occaſion, and continued burning with ſuch violence, that the flame thereof at a diſtance appeared like a brandiſhed ſword, turning every way with the wind. Now if the ſoil of Eden was bituminous, like that of Gomorrah (which was once ſo fertile as to be compared to the "garden of the Lord"), the fire would continue burning till it produced the ſame effect in the one place as it did in the other, and turned a great part of that tract into ſea: which ſeems to countenance the opinion of thoſe who place the ſituation of Paradiſe in ſome part of the Perſian gulf."

Paradiſe ‖ Paradox.

ſtricteſt modeſty, they keep themſelves ſecluded from public view in pavilions of hollow pearls, ſo large, that, as ſome traditions have it, one of them will be no leſs than 16, or, as others ſay, 60 miles long, and as many broad. With theſe the inhabitants of paradiſe may taſte pleaſures in their height; and for this purpoſe will be endowed with extraordinary abilities, and enjoy a perpetual youth."

PARADISE Loſt, the name of a modern epic poem, the firſt and fineſt of thoſe compoſed by Milton.

The ſubject of this poem is extraordinary; it had never before been attempted, and ſeemed to be above the efforts of human genius. Angels and devils are not the machinery, but the principal actors in it; ſo that what would appear marvellous in any other compoſition, is in this only the natural courſe of events.—The poet's intention was, as he expreſſes it himſelf, to vindicate the ways of God to men. How far Milton was happy in the choice of his ſubject, may be queſtioned. It has led him into difficult ground, though it certainly ſuited the daring ſublimity of his genius. It is a ſubject for which he alone was fitted; and, in the conduct of it, he has ſhown a ſtretch both of imagination and invention which is perfectly wonderful.

Bird of PARADISE. See the following article.

PARADISEA, a genus of birds belonging to the order of picæ. See ORNITHOLOGY *Index*.

PARADOX, παραδοξον, in philoſophy, a propoſition ſeemingly abſurd, as being contrary to ſome received opinions, but yet true in fact.

The vulgar and illiterate take almoſt every thing, even the moſt important, upon the authority of others, without ever examining it themſelves. Although this implicit confidence is ſeldom attended with any bad conſequences in the common affairs of life, it has nevertheleſs, in other things, been much abuſed; and in political and religious matters has produced fatal effects. On the other hand, knowing and learned men, to avoid this weakneſs, have fallen into the contrary extreme: ſome of them believe every thing to be unreaſonable or impoſſible, that appears ſo to their firſt apprehenſion; not averting to the narrow limits of the human underſtanding, and the infinite variety of objects, with their mutual operations, combinations, and affections, that may be preſented to it.

It muſt be owned, that credulity has done much more miſchief in the world than incredulity has done, or ever will do; becauſe the influences of the latter extend only to ſuch as have ſome ſhare of literature, or affect the reputation thereof. And ſince the human mind is not neceſſarily impelled, without evidence, either to belief or unbelief, but may ſuſpend its aſſent to, or diſſent from, any propoſition, till after a thorough examination; it is to be wiſhed that men of learning, eſpecially philoſophers, would not haſtily, and by the firſt appearances, determine themſelves with reſpect to the truth or falſehood, poſſibility or impoſſibility of things.

A perſon who has made but little progreſs in the mathematics, though in other reſpects learned and judicious, would be apt to pronounce it impoſſible that two lines, which were nowhere two inches aſunder, may continually approach towards one another, and yet never meet though continued to infinity; and yet the truth of this propoſition may be eaſily demonſtrated. And many, who are good mechanics, would be as apt to pronounce the ſame, if they were told, that though the teeth of one wheel ſhould take equally deep into the teeth of three others, it ſhould affect them in ſuch a manner, that, in turning it any way round its axis, it ſhould turn one of them the ſame way, another the contrary way, and the third no way at all.

Paradox ‖ Paraguay.

No ſcience abounds more with paradoxes than geometry: thus, that a right line ſhould continually approach to the hyperbola, and yet never reach it, is a true paradox; and in the ſame manner a ſpiral may continually approach to a point, and yet not reach it in any number of revolutions, however great.

The Copernican ſyſtem is a paradox to the common people; but the learned are all agreed as to its truth. Geometricians have of late been accuſed of maintaining paradoxes; and ſome do indeed uſe very myſterious term ſin expreſſing themſelves about aſymptotes, the ſums of infinite progreſſions, the areas comprehended between curves and their aſymptotes, and the ſolids generated from theſe areas, the length of ſome ſpirals, &c. But all theſe paradoxes and myſteries amount to no more than this; that the line or number may be continually acquring increments, and thoſe increments may decreaſe in ſuch a manner, that the whole line or number ſhall never amount to a given line or number. The neceſſity of admitting it is obvious from the nature of the moſt common geometrieal figures: thus, while the tangent of a circle increaſes, the area of the correſponding ſector increaſes, but never amounts to a quadrant. Neither is it difficult to conceive, that if a figure be concave towards a baſe, and have an aſymptote parallel to the baſe (as it happens when we take a parallel to the aſymptote of the logarithmic curve, or of the hyperbola, for a baſe), that the ordinate in this caſe always increaſes while the baſe is produced, but never amounts to the diſtance between the aſymptote and the baſe. In like manner, a curvilinear area may increaſe while the baſe is produced, and approach continually to a certain finite ſpace, but never amount to it; and a ſolid may increaſe in the ſame manner, and yet never amount to a given ſolid. See *M'Laurin's Fluxions*. See *LOGARITHMIC Curve*.

PARADOXI, a ſort of mimes or buffoons among the ancients, who entertained the people with extempore effuſions of drollery. They were alſo called *Paradoxologi*, *Ordonarii*, *Neanicologi*, and *Aretalogi*. See MIMI.

PARAGAUDÆ, among the Romans, were wreaths of gold, or ſilk and gold, interwoven in, not ſewed to their garments. The garment was ſometimes of one colour with one paragaudæ; ſometimes of two colours, with two paragaudæ; of three colours, with three paragaudæ, &c. They were worn both by men and women.

PARAGOGE, in *Grammar*, a figure whereby a letter or ſyllable is added to the end of a word, as *med*, for *me*; *dicier*, for *dici*, &c.

PARAGRAPH, in general, denotes a ſection or diviſion of a chapter; and in references is marked thus, ¶.

PARAGUAY or LA PLATA, a province of Spaniſh America, bounded on the north by the river of the Amazons; on the eaſt, by Brazil; on the ſouth, by Patagonia; and on the weſt, by Chili and Peru.

This

Paraguay. This country was firſt diſcovered by Sebaſtian Cabot, who, in 1526, paſſed from Rio de la Plata to the river Parana in ſmall barks, and thence entered the river called *Uruguay*. It was not, however, thoroughly reduced till the Jeſuits obtained poſſeſſion of it. A few of theſe went to Paraguay ſoon after the city of Aſſumption was founded, and converted about 50 Indian families, who ſoon induced many others to follow their example, on account of the peace and tranquillity they enjoyed under the fathers. They had long reſiſted the Spaniards and Portugueſe; but the Jeſuits, by learning their language, conforming to their manners &c. ſoon acquired great authority among them; till at laſt, by ſteadily purſuing the ſame artful meaſures, they arrived at the higheſt degree of power and influence, being in a manner the abſolute ſovereigns of a great part of this extenſive country; for above 350,000 families are ſaid to have been ſubject to them, living in obedience and awe bordering on adoration, yet procured without the leaſt violence or conſtraint.

Gent. Mag. 1753. We have the following particular account of the miſſions of Paraguay, in the words of Don Jorge Juan, &c. "The territories of the miſſions of Paraguay comprehended not only the province of that name, but alſo a great part of the provinces of Santa Cruz de la Sierra, Tucuman, and Buenos Ayres. The temperature (A) of the air is good, though ſomewhat moiſt, and in ſome parts rather cold: the ſoil in many places is fertile (B); and produces in great abundance not only the fruits and vegetables peculiar to America, but alſo thoſe of Europe which have been introduced there. The chief articles of their commerce are cotton, tobacco, ſome ſugar, and the herb called *Paraguay*. Every town gathers annually more than 2000 arrobas of cotton, of a quarter of an hundred weight each, which the Indians manufacture into ſtuffs. There are alſo great quantities of tobacco produced. But the chief article is the herb Paraguay: for it grows only in the diſtricts of the miſſions; and Paraguay. there is a vaſt conſumption of this herb in all the provinces of Chili and Peru, eſpecially of that called *camini*, which is the pure leaf; the infuſion of which is called *mate*, and is drank by the inhabitants of Lima twice a day in lieu of tea or chocolate. The mate which is made by the infuſion of the ſtalk is not ſo much eſteemed.

"'Tis now almoſt two centuries ſince theſe miſſions were firſt ſet on foot by the Jeſuits. The bad management of the Portugueſe greatly favoured the views of theſe fathers. There was a nation of Indians called *Guaranies*, ſome whereof were ſettled upon the banks of the rivers Uruguay and Parana, and others a hundred leagues higher up in the country to the north-weſt of Guayra. The Portugueſe frequently came upon them, and by force carried away as many as they thought proper to their plantations, and made ſlaves of them. Offended by ſuch treatment, the Guaranies reſolved to quit their ſettlements in the neighbourhood of the Portugueſe, and to remove into the province of Paraguay. Accordingly a migration of 12,000 perſons great and ſmall, enſued. Theſe the Jeſuits ſoon converted; and having had the like ſucceſs in converting about an equal number of the natives of Tape, a diſtrict in Paraguay, they united the two nations, and laid the foundation of their future dominion. Theſe fathers ſeem to have trode in the ſteps of the firſt Incas, and to have civilized nations and converted ſouls in order to acquire ſubjects. According to a very exact account taken in the year 1734, there were then 32 towns of the Guaranies, which were reckoned to contain above 30,000 families; and as the new converts were continually increaſing, they were then about laying the foundations of three new towns. There were alſo then ſeven very populous towns inhabited by the converted Chiquito Indians, and they were preparing to build others for the reception of the new converts of that nation which were daily made.

"The

(A) The climate of Paraguay differs but little from that of Spain; and the diſtinctions between the ſeaſons are much the ſame. In winter, indeed, violent tempeſts of wind and rain are very frequent, accompanied with ſuch dreadful claps of thunder and lightning as fill the inhabitants, though uſed to them, with terror and conſternation. In ſummer, the exceſſive heats are mitigated by gentle breezes, which conſtantly begin at eight or nine in the mornimg.

(B) It produces maize, manioc, and potatoes, beſides many fruits and ſimples unknown in Europe. Vines, however, do not thrive, except in ſome particular places. Wheat has alſo been tried; but it is only uſed for cakes, and other things of that kind. There are great numbers of poiſonous ſerpents, and others of enormous ſize, many of which live on fiſh. It produces alſo abundance of ſugar, indigo, pimento, ipecacuanha, and variety of other drugs; and above all the herb Paraguay, which it exports to the value of 100,000l. annually, to the provinces of Chili and Peru. It is the leaf of a middle-ſized tree, reſembling an orange tree, in taſte not unlike mallows. There are three gatherings: firſt, the buds before it unfolds its leaves, which is the beſt, but ſooneſt ſubject to decay; the ſecond gathering is the full grown leaves at the firſt expanſion; the third is when the leaves have remained on ſome time after they are full blown. The leaves are roaſted, and then kept in pits dug in the ground to be ready for ſale. Theſe trees grow principally in the moraſſes on the eaſt ſide of Paraguay, but now are diſtributed all over the country. The manner of uſing it is, to dry and reduce it almoſt to powder, then put it into a cup with lemon juice and ſugar; boiling water is then poured on it, and the liquor drank as ſoon as may be. It is ſuppoſed to be ſerviceable in all diſorders of the head, breaſt, and ſtomach, it preſerves the miners from the noxious mineral ſteams with which they would otherwiſe be ſuffocated; is a ſovereign remedy in putrid fevers and the ſcurvy; allays hunger; and purifies all kind of water, by infuſing it therein. The country is diverſified with foreſts, mountains, low lands (great part of the year under water), fertile meadows, and moraſſes. Almoſt every foreſt abounds with bees, which have their hives in hollow trees. Beſides cotton, the country produces hemp, flax, corn, rice, and wool; and there are ſuch numbers of wild cattle, that they are killed only for their hides. The natives differ not materially from thoſe deſcribed under the article AMERICA.

Paraguay. "The miſſions of Paraguay are ſurrounded on all ſides with wild or unconverted Indians; ſome of whom live in friendſhip with the towns, but others haraſs them by frequent incurſions. The father miſſionaries frequently viſit thoſe Indians, and preach to them; and from theſe expeditions they ſeldom return without bringing along with them ſome new converts to incorporate with their civilized ſubjects. In the performance of this duty they ſometimes penetrate 100 leagues into thoſe uncultivated tracts where wild Indians range; and it is obſerved that they meet with the leaſt ſucceſs amongſt thoſe nations with whom any fugitive Meſtizos, or Spaniſh criminals, have taken refuge. The diligence of theſe fathers is certainly worthy the imitation of the Proteſtant clergy.

"Every town has its curate, who is aſſiſted by one, and very often by two prieſts of the ſame order, according to the largeneſs and extent of the town and its diſtrict. Theſe two or three prieſts, together with ſix boys who aſſiſt them in the ſervice of the church, form a ſmall college in every town, wherein the hours and other exerciſes are regulated with the ſame formality and exactneſs as in the large colleges in the cities of Peru and Chili. The moſt troubleſome part of the duty of the aſſiſtant prieſts are the perſonal viſitations which they are obliged to make to the Indians to prevent their giving themſelves up to idleneſs; for ſuch is the ſlothfulneſs of the Guaranies, that if they were not very carefully looked after, the ſociety would receive no benefit or advantage from them. They alſo attend the public ſhambles, where the cattle neceſſary for the ſuſtenance of the Indians are daily ſlaughtered, and diſtribute the fleſh amongſt all the families in the town, in proportion to the number of perſons whereof each family conſiſts; ſo that all may have what is neceſſary, none what is ſuperfluous. They alſo viſit the ſick, and ſee that they are properly taken care of. They are generally employed the whole day in theſe affairs, ſo that they have ſeldom time to aſſiſt the curate in his ſpiritual functions. All the boys and girls in the pariſh go to church every day in the week (except on feſtivals and Sundays), where they are inſtructed by the curate. On Sundays the whole pariſh goes to church to be inſtructed. The curate is beſides obliged to go to confeſs the ſick, and to adminiſter the viaticum to thoſe who deſire it, and alſo to perform all the other functions peculiar to this office. In ſtrictneſs the curate ſhould be appointed in this manner. The ſociety ſhould nominate three perſons to the governor of Buenos Ayres (in whoſe government the miſſions of Paraguay are included), as being vice patron of the miſſions, that he may chooſe one of them for curate; and the curates ſhould be inſtructed in the duties of their office by the biſhop: but as the provincials of the order can beſt judge who are properly qualified for the office, the governor and biſhop have ceded their rights to them, and by them the curates are always appointed. The miſſions of the Guaranies and the miſſions of the Chiquitos, into which the miſſions of Paraguay are divided, have each their diſtinct father-ſuperior, by whom the coadjutors or aſſiſtant curates of the ſeveral towns in the reſpective diviſions are appointed. Theſe ſuperiors are continually viſiting the towns, to ſee that they be well governed, and to endeavour to improve and augment them. They likewiſe from time to time take care to ſend out ſome fathers of the order into the countries of the wild Indians to make new converts. The better to enable him to diſcharge theſe duties, the ſuperior of the Guaranies is aſſiſted by two vice ſuperiors; one of whom reſides in Parana, the other upon the banks of the river Uruguay, and the ſuperior himſelf reſides in the town of Candelaria. The poſt of ſuperior of the Chiquitos is not near ſo troubleſome as that of the ſuperior of the Guaranies; for the Chiquitos are not only leſs numerous, but much more docile and induſtrious than the Guaranies, ſo that they need not be continually watched, and attended in order to prevent their idleneſs. The king allows an annual ſtipend of 300 pezas to each curate of the Guaranies, for the maintenance of himſelf and his aſſiſtants. The money is paid to the ſuperior, who iſſues out monthly to each curate as much as is neceſſary for his ſubſiſtence; and when they want any thing extraordinary, their wants are ſupplied upon application to him. But the Chiquitos maintain their own curates. In every town there is a plantation ſet apart for the maintenance of the curate, which is cultivated by the joint labour of all the inhabitants. The produce of theſe plantations is generally more than ſufficient for the ſubſiſtence of the curates and the ſurplus is ſold to buy ornaments for the churches. Nor are the curates the ſpiritual rectors of the towns only; they are alſo in effect the civil governors. It is true there are in every town of the miſſions a governor, regidores, and alcaldes, as there are in the other towns and cities under the Spaniſh government. But though the governor is elected by the Indians, he muſt be approved by the curate before he enters upon his office; nor can he chaſtiſe or puniſh delinquents without the curate's permiſſion. The curate examines thoſe who are accuſed of offences; and if he finds them guilty, delivers them to the governor to be puniſhed, according to the nature and quality of the offence committed. He ſometimes orders them to be impriſoned for a few days, ſometimes to faſt, and, when the fault is conſiderable, to be whipped, which is the ſevereſt puniſhment that is ever inflicted; for the regulations and inſtructions of the curates have been ſo efficacious, that murder and ſuch like heinous crimes are never here committed. And even before they undergo theſe gentle corrections, the curate diſcourſes the offenders in a mild friendly manner; and endeavours to excite in them a due ſenſe of their crime, and of the ill conſequences that might flow from it, and to convince them that they merit a much greater puniſhment than is inflicted. This mild treatment prevents tumults and inſurrections, and acquires the curates univerſal veneration and eſteem. The alcaldes are choſen annually by the regidores. The governor, regidores, and alcaldes are all Indians of the beſt capacities; and are in effect only ſo many overſeers appointed by the curate, and dignified with theſe empty titles (c).

Paraguay.

Every town has its armory or magazine, in which are lodged

(c) We call them *empty titles*; becauſe in all cauſes the Jeſuit or curate of the pariſh was a kind of ſovereign regarded as a petty prince, and obeyed as an oracle. Whatever forms might take place in the choice of the chiefs of the

Paraguay. lodged the fire-arms or other weapons wherewith the militia are armed when they take the field to repel the irruptions of the Portugueſe and wild Indians. The militia are very dexterous and expert in the management of their arms; and are exerciſed on the eves of feſtivals in the ſquares or public places of the towns. The militia is compoſed of all thoſe who are able to bear arms: they are formed into companies, which have each a proper number of officers choſen from amongſt thoſe who are moſt diſtinguiſhed for judgement and conduct. The dreſs of the officers is rich, adorned with gold and ſilver, and the device of the town to which they belong: they always appear in their uniforms on feſtivals, and on the days of military exerciſe. The governor, alcaldes, and regidores have alſo proper robes and dreſſes ſuitable to their reſpective offices, in which they appear on public occaſions. There are ſchools in every town, in which the common people are taught reading and writing, and alſo muſic and dancing; in which arts they become very ſkilful. The Jeſuits are very careful in conſulting the natural bent and genius of their ſcholars, and in directing their ſtudies and application accordingly. The lads of the moſt promiſing genius are taught the Latin tongue with great ſucceſs. In one of the court-yards of every curate's houſe are various ſhops or workhouſes of painters, carvers, gilders, ſilverſmiths, carpenters, weavers, and clockmakers, and of ſeveral other mechanics and artizans, who daily work for the public under the direction of the coadjutors, and at the ſame time teach the youth their reſpective arts and occupations.

The churches are large, well built, finely decorated and enlightened, and not inferior to the richeſt in Peru. Each church has a choir of muſic, compoſed of inſtruments of all ſorts, and very good voices; ſo that divine ſervice is celebrated here with as much pomp and ſolemnity as in cathedrals: nor are the public proceſſions leſs ſplendid, eſpecially that of the hoſt; which, whenever it is carried abroad, is attended by the governor, alcaldes, and regidores, in their robes, and alſo by the militia in a body. The houſes of the Indians are as well built and as well furniſhed as moſt of the Spaniſh houſes in Peru. The greateſt part indeed have mud walls, others are built with brick, and ſome with ſtone, but all are covered with tiles. In every town there is a houſe where gunpowder is made, that they may never want it when they are obliged to take arms, and always have it ready to make artificial fire works on rejoicing days: for all feſtivals are here obſerved with as great ceremony and exactneſs as in the greateſt cities. Upon the proclamation of a new king of Spain, the governors, alcaldes, regidores, and officers of the militia, appear dreſſed in new robes and uniforms of a different faſhion from thoſe they wore before. There is a ſort of convent in every town; in one part whereof are confined women of an ill life, and the other part is deſtined for the reception of married women who have no family, and who retire thither when their huſbands are abſent. For the maintenance of this houſe, and for the ſupport of orphans, and of old and infirm people, all the inhabitants of the town work two days in every week; and the profits of their labour, which is called *the labour of the community*, are ſet apart for the purpoſe. If the produce of this labour be more than is neceſſary for their ſubſiſtence, the ſurplus is laid out to buy ornaments for the churches, and clothes for the orphans and aged and infirm people; ſo that here are no beggars, nor any who want the neceſſaries of life. In ſhort, by the wiſe policy and prudent regulations of the Jeſuits, the whole community enjoys peace and happineſs. Paraguay.

"The Guaranies are ſo profuſe and negligent, that the curates are obliged to take into their hands all their goods and ſtuffs as ſoon as they are manufactured and made ready for ſale; otherwiſe they would waſte and deſtroy them, and not be able to maintain themſelves. The Chiquitos, on the contrary, are diligent and frugal; ſo that the curates have no other trouble with them than the aſſiſting them in the diſpoſal of their goods, and procuring returns for them. For this purpoſe the ſociety keeps a factor or procurator at Santa Fé and Buenos Ayres, to whom the merchandiſe of the miſſions is ſent to be diſpoſed of; and theſe factors return the value to the fathers in ſuch ſorts of European commodities as are wanted. The goods of every town are kept ſeparate; and the royal taxes are taken out of them without any other diſcounts or allowances, ſave the ſtipends of the curates of the Guaranies and the penſions of the caciques. The fathers chooſe to manage the commerce of their ſubjects themſelves, leſt they ſhould contract vices by their communication with other people. In this reſpect the fathers are ſo careful, that they will not ſuffer any of the people of Peru, whether they be Spaniards, Meſtizos, or Indians, to enter into the territories of the miſſions. They ſay that the Indians are but juſt recovered from a barbarous and diſſolute way of life, and that their manners are now pure and innocent; but that if ſtrangers were ſuffered to come among them, the Indians would ſoon get acquainted with people of looſe lives: and as the Guaranies eſpecially are very prone to vice, wickedneſs, diſorder, and rebellion would ſoon be introduced; the ſociety would loſe all the ſouls they have converted; and their little republic would be utterly ſubverted. However, there are ſome who ſuſpect that theſe are all ſpecious pretences; and that the ſociety's real motive for prohibiting all intercourſe with ſtrangers, is the fear of rivals in the beneficial commerce of Paraguay, which is now entirely in their hands."

Such is the account they themſelves have given us of their own conduct: but others have treated their characters with more ſeverity; accuſing them of pride, haughtineſs, and abuſing their authority to the greateſt degree; inſomuch that they would have cauſed the magiſtrates to be whipped in their preſence, and obliged perſons of the higheſt diſtinction within their juriſdiction to kiſs the hem of their garment, as the greateſt honour at which they could poſſibly arrive. To this might be added, the utter abolition of all ideas of property; which indeed was rendered

the ſeveral departments, their ſucceſs ultimately depended on him. The cacique held of him; the general received his commiſſion and inſtructions from him; and all his deciſions were without appeal. There were, we are informed, not leſs than 6000 parithes on the banks of the rivers Uruguay and Parana, not exceeding the diſtance of 30 miles from each other; in each of which was a Jeſuit or curate.

Paraguay || Paralepſis.

rendered uſeleſs by the general magazines and ſtorehouſes which they eſtabliſhed, and from which, together with the herds of cattle kept for the public uſe, they ſupplied the wants of individuals as occaſion required; yet ſtill it was objected to the character of the fraternity, that they poſſeſſed large property themſelves, and claimed the abſolute diſpoſal of the meaneſt effects in Paraguay. All manufactures belonged to them; every natural commodity was brought to them; and the treaſures annually remitted to the ſuperior of the order were thought to be a proof that zeal for religion was not the only motive by which they were influenced.

Beſides the parochial or provincial governments, there was a kind of ſupreme council, compoſed of an annual meeting of all the fathers, who concerted the meaſures neceſſary for promoting the common concerns of the miſſion, framed new laws, corrected or aboliſhed old ones, and, in a word, adapted every thing to circumſtances. It is ſaid to have been one of the great objects of the annual councils to take ſuch meaſures as ſhould effectually deprive ſtrangers of all intelligence concerning the ſtate of the miſſion. Hence the natives were reſtrained from learning the Spaniſh tongue, and were taught, that it was dangerous for their ſalvation to hold any converſation with a ſubject of Spain or Portugal. But the circumſtance that rendered their deſigns moſt ſuſpicious, was the eſtabliſhment of a military force. Every pariſh had its corps of horſe and foot, who were duly exerciſed every Sunday; and it was ſaid, that the whole amounted to a body of 70,000 or 80,000 troops, well diſciplined.

The city of Buenos Ayres, the metropolis of this vaſt province, was taken by the naval and military forces of his Britannic majeſty, under the command of Sir Home Popham and Major-general Beresford, on the 26th of June 1806. It was attacked on the 9th of Auguſt the ſame year, by a detachment of Spaniſh troops from Monte Video, and obliged to ſurrender on the 12th under a capitulation, the terms of which were not afterwards obſerved; and General Beresford, the officers, troops, marines of the ſquadron, and a few ſeamen, remained priſoners of war. A more conſiderable force, under the command of Lieutenant-general Whitelocke, was afterwards ſent to reduce it. That officer, after a number of ſkirmiſhes and partial engagements with the enemy, in which the officers and troops under his command exhibited abundant proofs of great bravery, thought proper to abandon the idea of reducing the town. The reaſon aſſigned by him for this myſterious conduct, the dread that all the priſoners would be maſſacred by an exaſperated mob, might have done honour to his humanity, but it is extremely doubtful whether or not that was founded on fact. The Britiſh government certainly thought otherwiſe, and the degrading ſentence of the court martial by which he was tried, gives us reaſon to conclude that his anxiety for the life of General Beresford and the reſt of the Britiſh priſoners was nothing more than a pretext.—The reader will find ſome intereſting information with regard to this country in Davie's Letters from Paraguay in 1803.

PARALIPOMENA, in matters of literature, denotes a ſupplement of things omitted in a preceding work.

PARALEPSIS. See ORATORY, N° 87.

PARALLACTIC, in general, ſomething relating to the parallax of heavenly bodies. See PARALLAX.

Parallactic, Parallax.

PARALLAX, in *Aſtronomy*, is the difference between the places of any celeſtial object as ſeen from the ſurface, and from the centre of the earth at the ſame inſtant.

Let E in figure of parallax, repreſent the centre of the earth, O the place of an obſerver on its ſurface, whoſe viſible horizon is OH, and true horizon EF: Now let ZDT be a portion of a great circle in the heavens, and A the place of any object in the viſible horizon; join EA, and produce it to C; then C is the *true* place of the object, and H is its *apparent* place, and the angle CAH is the parallax; or, becauſe the object is in the horizon, it is called the *horizontal parallax*. But OAE, the angle which the earth's radius ſubtends at the object, is equal to CAH: Hence the horizontal parallax of an object may be defined to be the angle which the earth's ſemidiameter ſubtends at that object. For the various methods hitherto propoſed to find the quantity of the horizontal parallax of an object, ſee ASTRONOMY.

1 Illuſtration. Plate CCCCIV.

The whole effect of parallax is in a vertical direction: For the parallactic angle is in the plane paſſing through the obſerver and the earth's centre; which plane is neceſſarily perpendicular to the horizon, the earth being conſidered a ſphere.

2 The more elevated an object is above the horizon, the leſs is the parallax, its diſtance from the earth's centre continuing the ſame. When the object is in the zenith, it has no parallax; but when in the horizon, its parallax is greateſt. The horizontal parallax being given, the parallax at any given altitude may be found by the following rule:

The parallax decreaſes with the diſtance of the object from the zenith.

3 To the logarithmic coſine of the given altitude, add the log. ſine of the horizontal parallax, the ſum, rejecting 10 from the index, will be the log. ſine of the parallax in altitude.

The ſine of the parallax in alt. is to the ſine of the hor. par. as the coſine of apparent altitude is to the radius.

Demonſtration. Let B be the place of an object; produce OB, ED to F and D; then the angle BOZ will be the apparent altitude of the object, BEZ the true altitude, and OBE the parallax in altitude. Now in the triangle AOE,

R : ſine OAE : : EA : EO.

And in the triangle OBE

BE (=EA) : EO : : ſine BOE : ſine OBE.

Hence R : coſine BOA : : ſine OAE : ſine OBE.

As the two laſt terms are generally ſmall quantities, the arch may be ſubſtituted in place of its ſine without any ſenſible error.

Example. Let the apparent altitude of the moon's centre be 39° 25′, and the moon's horizontal parallax 56′ 54″. Required the parallax in altitude.

Moon's apparent alt. 39° 25′	coſine 9.8879260
Moon's horizontal par. 56′ 54″	ſine 8.2188186
Moon's par. in altitude 43′ 57″	ſine 8.1067446

Or, to the ſecant of the moon's apparent altitude, add the proportional logarithms of the parallax in altitude.

As the apparent place of an object is nearer the horizon than its true place, the parallax is therefore to be added to the apparent altitude, to obtain the true altitude. Hence alſo an object will appear to riſe later and ſet ſooner.

The

Parallax.

4 The fine of the parallax of an object in the inverſe ratio of its diſtance from the earth's centre.

The fine of the parallax of an object is inverſely as its diſtance from the earth's centre.

Demonſtration. Let A be the place of an object and H the place of the ſame object at another time, or that of another object at the ſame inſtant; join EH, then in the triangles AOE, HOE,

R : ſine OAE : : AE : OE

ſine OHE : R : : OE : EH

Hence ſine OHE : ſine OAE : : AE : EH.

5 Parallax increaſes the apparent diſtance of an object from the meridian.

The parallax of an object makes it appear more diſtant from the meridian than it really is.

Demonſtration. The true and apparent places of an object are in the ſame vertical, the apparent place being lower than the true; and all verticals meet at the zenith: Hence the apparent place of an object is more diſtant from the plane of the meridian than the true place.

6 Parallax in longitude, latitude, right aſcenſion, and declination.

The longitude, latitude, right aſcenſion, and declination of an object are affected by a parallax. The difference between the true and apparent longitudes is called the *parallax in longitude;* in like manner, the difference between the true and apparent latitudes, right aſcenſions, and declinations, are called the *parallax in latitude*, *right aſcenſion*, and *declination*, reſpectively.—When the object is in the nonageſimal, the parallax in longitude is nothing, but that in latitude is greateſt: and when the object is in the meridian, the parallax in right aſcenſion vaniſhes, and that in declination is a maximum. The apparent longitude is greater than the true longitude, when the object is eaſt of the nonageſimal, otherwiſe leſs; and when the object is in the eaſtern hemiſphere, the apparent right aſcenſion exceeds the true, but is leſs than the true right aſcenſion when the object is in the weſtern hemiſphere. The apparent place of an object is more diſtant from the elevated poles of the ecliptic and equator than the true place: hence, when the latitude of the place and elevated pole of the ecliptic are of the ſame name, the apparent latitude is leſs than the true latitude, otherwiſe greater; and the apparent declination will be leſs or greater than the true declination, according as the latitude of the place, and declination of the object, are of the ſame or of a contrary denomination.

The parallaxes in longitude, latitude, right aſcenſion, and declination, in the ſpheroidal hypotheſis, may be found by the following formulæ; in which L repreſents the latitude of the place, diminiſhed by the angle contained between the vertical and radius of the given place; P the horizontal parallax for that place; a the altitude of the nonageſimal at the given inſtant; d the apparent diſtance of the object from the nonageſimal; $l\lambda$ the true and apparent latitudes of the object; $D\delta$ the true and apparent declinations reſpectively; and m its apparent diſtance from the meridian.

Then par. in long. $=$ P. ſine a. ſine d. ſecant l, to radius unity; and par. in lat. $=$ P. coſine a, coſine $\lambda \mp p$. coſine d. ſine a. ſine λ.

The ſign $\mp$ is uſed when the apparent diſtance of the object from the nonageſimal and from the elevated pole of the ecliptic are of the ſame affection, and the ſign $+$ if of different affection. If the greateſt preciſion be required, the following quantity 0.00000121216. par. long.^{2}, ſine $2l$, is to be applied to the parallax in latitude found as above, by addition or ſubtraction, according as the true diſtance of the object from the elevated pole of the ecliptic is greater or leſs than 90°. Parallax

Again, par. in right aſcen. $=$ P. coſine L. ſine m. ſecant D, to radius unity; and par. in declination $=$ P. ſine L. coſine $\delta \mp$ P. coſine L. ſine δ, coſine m.

The upper or lower ſign is to be uſed, according as the diſtance of the object from the meridian and from the elevated pole of the equator are of the ſame or different affection. Part 2d of par. in declination $=$ 0.00000121216 par. in right aſcen.^{2}, ſine 2D; which is additive to, or ſubtractive from, part firſt of parallax in declination, according as the true diſtance of the object from the elevated pole of the equator is greater or leſs than 90°. For the moon's parallax, ſee ASTRONOMY. There is alſo a curious paper in the firſt volume of Aſiatic Reſearches, p. 320, &c. on the ſame ſubject, to which we refer our readers.

PARALLAX of the Earth's annual Orbit, is the difference between the places of a planet as ſeen from the ſun and earth at the ſame inſtant. The difference between the longitudes of the planet as ſeen from the ſun and earth is called the *parallax in longitude;* and the difference between its latitudes is the *parallax in latitude.*

PARALLAX of the Fixed Stars, ſee ASTRONOMY, art. 268. which contains an account of the method uſed by Dr Herſchel, to aſcertain the parallax of a ſtar which appears to be double, from obſervations made at oppoſite points of the orbit of the earth. M. Piazzi, the diſcoverer of the planet Ceres, has made many obſervations of the zenith diſtances of α Lyræ, Arcturus, Procyon, and Aquilæ, &c. at thoſe times when the effects of parallax ought to be the greateſt. His obſervations are publiſhed in the 10th volume of the Italian Society. Let p be the abſolute parallax, conſequently, ſine $p = \frac{1}{\text{diſtance of the ſtar from the earth}}$; then the parallax of Arcturus in declination will be $0.595p$, and that in right aſcenſion, $1.005p$; hence, he obſerves, that obſervations of the right aſcenſion of this ſtar are preferable to thoſe of the declination, for determining the parallax of this ſtar.

M. Calendrelli, in a work printed at Rome in 1806, has given the reſult of his obſervations of the zenith diſtances of α Lyræ, made with the ſector of Meſſ. Maire and Boſcovich. By comparing five obſervations in June, with four in December 1805, and five in March with the ſame number in June, he deduced the parallax of α Lyræ in declination to be 4.″7, and that in right aſcenſion 6.″85.—According to M. Piazzi, the parallax is leſs than half of theſe quantities; and, hence, the required quantity not exceeding the unavoidable differences attending obſervations, it appears difficult to determine it, ſo as to be free from doubt.

Meſſ. Delambre and Mechain have made many obſervations of the pole ſtar, and β Urſæ minoris, being thoſe ſtars which ought to have the greateſt parallax in declination, at the times moſt proper to diſcover their parallax; but from the compariſon, which M. Delambre made, of the zenith diſtances of theſe ſtars, he diſcovered nothing that could give the leaſt ſuſpicion of a parallax; and the ſmall anomalies which he obſerved are often in a contrary direction. M. Delambre adds, that

Parallax || Paranymph.

that theſe ſtars being of the ſecond magnitude, may be too far diſtant from us to have a parallax; however, although this may be the caſe, yet it appears to him that the fixed ſtars have no parallax.

The parallax of Venus affords the moſt correct method, hitherto propoſed, of finding the diſtance of the earth from the ſun; and, hence the diſtances of the other planets, and alſo their magnitudes. For this diſcovery we are indebted to the celebrated Dr Halley. From obſervations of the tranſits of this planet, in 1761 and 1769, the parallax of the ſun has been more accurately determined than previous thereto. The parallax of Mars has alſo been employed for the ſame purpoſe.

PARALLAX, is alſo uſed to denote the change of place in any object ariſing from viewing it obliquely with reſpect to another object. Thus the minute hand of a watch is ſaid to have a parallax when it is viewed obliquely; and the difference between the inſtants ſhown by it, when viewed directly and obliquely, is the quantity of parallax in time.

PARALLEL, in *Geometry*, an appellation given to lines, ſurfaces, and bodies, everywhere equidiſtant from each other. See GEOMETRY.

PARALLEL Sphere, that ſituation of the ſphere wherein the equator coincides with the horizon, and the poles with the zenith and nadir.

PARALLEL Sailing. See NAVIGATION, book i. chap. iv.

PARALLELS of Latitude, in *Aſtronomy*, are leſſer circles of the ſphere parallel to the ecliptic, imagined to paſs through every degree and minute of the colures.

PARALLELS of Altitude, or *Almucantars*, are circles parallel to the horizon, imagined to paſs through every degree and minute of the meridian between the horizon and zenith, having their poles in the zenith.

PARALLELS of Declination, in *Aſtronomy*, are the ſame with parallels of latitude in geography.

PARALLELOPIPED, in *Geometry*, a regular ſolid comprehended under ſix parallelograms, the oppoſite ones whereof are ſimilar, parallel, and equal to each other.

PARALOGISM, in *Logic*, a falſe reaſoning, or a fault committed in demonſtration, when a conſequence is drawn from principles that are falſe; or, though true, are not proved; or when a propoſition is paſſed over that ſhould have been proved by the way.

PARALYSIS, the PALSY. See MEDICINE *Index*.

PARAMARIBO, the capital of the former Dutch ſettlement of Surinam, ſituated about 18 miles from the mouth of a river of the ſame name. See SURINAM.

PARAMOUNT, (compounded of two French words, *par*, i. e. *per*, and *monter*, *aſcendere*), ſignifies in our law the "higheſt lord of the fee, of lands, tenements, and hereditaments." As there may be a lord meſne where lands are held of an inferior lord, who holds them of a ſuperior under certain ſervices; ſo this ſuperior lord is lord *paramount*. Alſo the king is the chief lord, or lord *paramount* of all the lands in the kingdom. *Co. Lit.* 1.

PARANYMPH, among the ancients, the perſon who waited on the bridegroom, and directed the nuptial ſolemnities; called alſo *pronubus* and *auſpex*, becauſe the ceremonies began by taking auſpicia. As the paranymph officiated only on the part of the bridegroom, a woman called *pronuba* officiated on the part of the bride.

Parapet || Paraſite.

PARAPET, in *Fortification*, an elevation of earth deſigned for covering the ſoldiers from the enemy's cannon or ſmall ſhot. See FORTIFICATION.

PARAPHERNALIA, or PARAPHERNA, in the civil law, thoſe goods which a wife brings her huſband beſides her dower, and which are ſtill to remain at her diſpoſal excluſive of her huſband, unleſs there is ſome proviſion made to the contrary in the marriage contract. Some of our Engliſh civilians define the paraphernalia to be ſuch goods as a wife challengeth over and above her dower or jointure, after her huſband's death; as furniture for her chamber, wearing apparel, and jewels, which are not to be put into the inventory of her huſband's goods; and a French civilian calls paraphernalia the moveables, linen, and other female neceſſaries, which are adjudged to a wife in prejudice of the creditors, when ſhe renounces the ſucceſſion of her huſband.

PARAPHIMOSIS, a diſorder of the penis, wherein the prepuce is ſhrunk, and withdrawn behind the glans, ſo as not to be capable of being brought to cover the ſame; which generally happens in venereal diſorders. See SURGERY.

PARAPHRASE, an explanation of ſome text in clearer and more ample terms, whereby is ſupplied what the author might have ſaid or thought on the ſubject. Such are eſteemed Eraſmus's Paraphraſe on the New Teſtament, the Chaldee Paraphraſe on the Pentateuch, &c.

PARAPHRENITIS, an inflammation of the diaphragm. See DIAPHRAGM, MEDICINE *Index*.

PARAPHROSYNE, a word uſed by medical writers to denote a delirium, or an alienation of mind in fevers, or from whatever other cauſe.

PARAPLEGIA, a ſpecies of palſy. See MEDICINE *Index*.

PARASANG, an ancient Perſian meaſure, different at different times, and in different places; being uſually 30, ſometimes 40, and ſometimes 50 ſtadia or furlongs. —The word, according to Littleton, has its riſe from *paraſch angarius*, q. d. the ſpace a poſtman rides from one ſtation, *angaria*, to another.

PARASCENIUM, in the Grecian and Roman theatres, was a place behind the ſcenes whither the actors withdrew to dreſs and undreſs themſelves. The Romans more frequently called it *Poſtſcenium*. See THEATRE.

PARASELENE, in *Natural Philoſophy*, a mock moon; a meteor or phenomenon encompaſſing or adjacent to the moon, in form of a luminous ring; wherein are obſerved ſometimes one and ſometimes two or more images of the moon.

PARASEMON, among the Greeks, was the figure carved on the prow of the ſhips to diſtinguiſh them from each other. This figure was generally that of a bull, lion, or other animal; ſometimes the repreſentation of a mountain, tree, flower, &c.

PARASITE, among the Greeks, was originally a very reputable title; the paraſites being a kind of prieſts, at leaſt miniſters, of the gods, in the ſame manner as the epulones were at Rome. They took care of the ſacred corn, or the corn deſtined for the ſervice of the temples and the gods, viz. ſacrifices, feaſts, &c. They had

Parasites || Parchment.

had even the intendance over sacrifices; and took care that they were duly performed. At Athens there was a kind of college of twelve parasites; each people of Attica furnishing one, who was always chosen out of the best families. Polybius adds, that a parasite was also an honourable title among the ancient Gauls, and was given to their poets. But of late it has been made a term of reproach, and used for a flatterer or mean dependent.

PARASITES, or *PARASITICAL Plants*, in *Botany*, such plants as are produced out of the trunk or branches of other plants, from whence they receive their nourishment, and will not grow on the ground. Such are the mistletoe, &c.

PARASTATÆ, in *Anatomy*. See PROSTATE.

PARATALASSIA. See PRIMORIE.

PARBUNCLE, in a ship, the name of a rope almost like a pair of slings: it is seized both ends together, and then put almost double about any heavy thing that is to be hoisted in or out of the ship; having the hook of the runner hitched into it, to hoist it up by.

PARCÆ, in heathen mythology, goddesses who were supposed to preside over the accidents and events, and to determine the date or period, of human life.

The Parcæ were three, Clotho, Lachesis, and Atropos; because, forsooth, all things have their beginning, progress, and end. Hence the poets tell us, the Parcæ spun the thread of men's lives; that Clotho held the distaff, and drew the thread; Lachesis twirled the spindle, and spun it; and Atropos cut it. *Clotho colum retinet, Lachesis net, Atropos secat.*

The ancients represent the Parcæ divers ways: Lucian, in the shape of three poor old women, having large locks of wool, mixed with daffodils on their heads; one of which holds a distaff, the other a wheel, and the third a pair of scissars, wherewith to cut the thread of life. Others represent them otherwise: Clotho appearing in a long robe of divers colours, wearing a crown upon her head adorned with seven stars, and holding a distaff in her hand; Lachesis in a robe beset with stars, with several spindles in her hand; and Atropos, clad in black, cutting the thread with a pair of large scissars.

The ancients imagined that the Parcæ used white wool for a long and happy life, and black for a short and unfortunate one. See *Necessity*, in MYTHOLOGY.

PARCHMENT, the skins of sheep or goats prepared after such a manner as to render it proper for writing upon, covering books, &c.

The word comes from the Latin *pergamena*, the ancient name of this manufacture; which is said to have been taken from the city Pergamos, to Eumenes king whereof its invention is usually ascribed; though, in reality, that prince appears rather to have been the improver than the inventor of parchment. For the Persians of old, according to Diodorus, wrote all their records on skins; and the ancient Ionians, as we are told by Herodotus, made use of sheep skins and goat skins in writing, many ages before Eumenes's time. Nor need we doubt that such skins were prepared and dressed for that purpose, after a manner not unlike that of our parchment; though probably not so artificially.—The manufacture of parchment is begun by the skinner, and finished by the parchment maker.

The skin having been stripped of its wool, and placed in the lime pit, in the manner described under the article SHAMMY, the skinner stretches it on a kind of frame, and pares off the flesh with an iron instrument; this done, it is moistened with a rag; and powdered chalk being spread over it, the skinner takes a large pumice stone, flat at bottom, and rubs over the skin, and thus scours off the flesh; he then goes over it again with an iron instrument, moistens it as before, and rubs it again with the pumice stone without any chalk underneath: this smooths and softens the flesh side very considerably. He then drains it again, by passing over it the iron instrument as before. The flesh side being thus drained, by scraping off the moisture, he in the same manner passes the iron over the wool or hair side: then stretches it on a frame, and scrapes the flesh side again: this finishes its draining; and the more it is drained the whiter it becomes. The skinner now throws on more chalk, sweeping it over with a piece of lamb skin that has the wool on; and this smooths it still farther. It is now left to dry, and when dried, taken off the frame by cutting it all round. The skin thus far prepared by the skinner, is taken out of his hands by the parchment maker, who first, while it is dry, pares it on a summer, (which is a calf skin stretched in a frame), with a sharper instrument than that used by the skinner; and working with the arm from the top to the bottom of the skin, takes away about one half of its thickness. The skin thus equally pared on the flesh side, is again rendered smooth, by being rubbed with the pumice stone, on a bench covered with a sack stuffed with flocks; which leaves the parchment in a condition fit for writing upon. The parings thus taken off the leather, are used in making glue, size, &c. See the article GLUE, &c.

Parchment || Pardon.

What is called *vellum* is only parchment made of the skins of abortives, or at least sucking calves. This has a much finer grain, and is whiter and smoother than parchment; but is prepared in the same manner, except its not being passed through the lime pit.

PARDALIS. See FELIS, MAMMALIA *Index*.

PARDIES, IGNATIUS GASTON, an ingenious and learned French Jesuit, born at Paris in 1636. He taught polite literature for several years; during which time he composed several small pieces, both in prose and verse, with peculiar delicacy of thought and style. At length he devoted himself entirely to mathematics and natural philosophy, and read all authors, ancient as well as modern, in those branches of knowledge. He died in 1673, of an infectious disorder contracted by confessing and preaching to the prisoners in the Bicetre during the Easter holidays. Father Pardies published several works; of which his Elements of Geometry are well known in this country, where a translation of them has gone through several editions. In 1672 he had a dispute with Sir Isaac Newton respecting his Theory of Light and Colours; which may be seen in the Philosophical Transactions for that year.

PARDON, in *Criminal Law*, is the remitting or forgiving an offence committed against the king.

Beccaria on Crimes and Punishments.

Law (says an able writer), cannot be framed on principles of compassion to guilt; yet justice, by the constitution of England, is bound to be administered in mercy: this is promised by the king in his coronation oath; and it is that act of his government which is the most personal and most entirely his own. The king condemns no man; that rugged task he leaves to his courts

Pardon. of juſtice: the great operation of his ſceptre is mercy. His power of pardoning was ſaid by our Saxon anceſtors to be derived *à lege ſuæ dignitatis*: and it is declared in parliament, by ſtat. 27 Hen. VIII. c. 24. that no other perſon hath power to pardon or remit any treaſon or felonies whatſoever; but that the king hath the whole and ſole power thereof, united and knit to the imperial crown of this realm.

This is indeed one of the great advantages of monarchy in general above any other form of government, that there is a magiſtrate who has it in his power to extend mercy wherever he thinks it is deſerved; holding a court of equity in his own breaſt, to ſoften the rigour of the general law, in ſuch criminal caſes as merit an exemption from puniſhment. Pardons (according to ſome theoriſts) ſhould be excluded in a perfect legiſlation, where puniſhments are mild, but certain; for that the clemency of the prince ſeems a tacit diſapprobation of the laws. But the excluſion of pardons muſt neceſſarily introduce a very dangerous power in the judge or jury; that of conſtruing the criminal law by the ſpirit inſtead of the letter; or elſe it muſt be holden, what no man will ſeriouſly avow, that the ſituation and circumſtances of the offender (though they alter not the eſſence of the crime) ought to make no diſtinction in the puniſhment. In democracies, however, this power of pardon can never ſubſiſt; for there nothing higher is acknowledged than the magiſtrate who adminiſters the laws: and it would be impolitic for the power of judging and of pardoning to centre in one and the ſame perſon. This (as the preſident Monteſquieu obſerves) would oblige him very often to contradict himſelf, to make and to unmake his deciſions: it would tend to confound all ideas of right among the maſs of people; as they would find it difficult to tell, whether a priſoner were diſcharged by his innocence, or obtained a pardon through favour. In Holland, therefore, if there be no ſtadtholder, there is no power of pardoning lodged in any other member of the ſtate. But in monarchies the king acts in a ſuperior ſphere; and though he regulates the whole government as the firſt mover, yet he does not appear in any of the diſagreeable or invidious parts of it. Whenever the nation ſee him perſonally engaged, it is only in works of legiſlature, munificence, or compaſſion. To him therefore the people look up as the fountain of nothing but bounty and grace; and theſe repeated acts of goodneſs, coming immediately from his own hand, endear the ſovereign to his ſubjects, and contribute more than any thing to root in their hearts that filial affection and perſonal loyalty which are the ſure eſtabliſhment of a prince.

The king may pardon all offences merely againſt the crown or the public; excepting, 1. That, to preſerve the liberty of the ſubject, the committing any man to priſon out of the realm, is, by the *habeas corpus* act, 31 Car. II. c. 2. made a *præmunire*, unpardonable even by the king. Nor, 2. can the king pardon, where private juſtice is principally concerned in the proſecution of offenders: *Non poteſt rex gratiam facere cum injuria et damno aliorum.* Therefore, in appeals of all kinds (which are the ſuit, not of the king, but of the party injured), the proſecutor may releaſe; but the king cannot pardon. Neither can he pardon a common nuiſance, while it remains unredreſſed, or ſo as to prevent an abatement of it; though afterwards he may remit the fine: becauſe though the proſecution is veſted in the king to avoid the multiplicity of ſuits, yet (during its continuance) this offence favours more of the nature of a *private* injury to each individual in the neighbourhood, than of a *public* wrong. Neither, laſtly, can the king pardon an offence againſt a popular or penal ſtatute, after information brought: for thereby the informer hath acquired a private property in his part of the penalty. Pardon.

There is alſo a reſtriction of a peculiar nature, that affects the prerogative of pardoning, in caſe of parliamentary impeachments, viz. that the king's pardon cannot be pleaded to any ſuch impeachment, ſo as to impede the inquiry, and ſtop the proſecution of great and notorious offenders. Therefore, when, in the reign of Charles II. the earl of Danby was impeached by the houſe of commons of high treaſon and other miſdemeanors, and pleaded the king's pardon in bar of the ſame, the commons alleged, "That there was no precedent that ever any pardon was granted to any perſon impeached by the commons of high treaſon, or other high crimes, depending the impeachment;" and thereupon reſolved, "That the pardon ſo pleaded was illegal and void, and ought not to be allowed in bar of the impeachment of the commons of England:" for which reſolution they aſſigned this reaſon to the houſe of lords, "That the ſetting up a pardon to be a bar of an impeachment defeats the whole uſe and effect of impeachments: for ſhould this point be admitted, or ſtand doubted, it would totally diſcourage the exhibiting any for the future; whereby the chief inſtitution for the preſervation of the government would be deſtroyed." Soon after the Revolution, the commons renewed the ſame claim, and voted, "That a pardon is not pleadable in bar of an impeachment." And at length, it was enacted by the act of ſettlement, 12 and 13 W. III. c. 2. "That no pardon under the great ſeal of England ſhall be pleadable to an impeachment by the commons in parliament." But, after the impeachment has been ſolemnly heard and determined, it is not underſtood that the king's royal grace is farther reſtrained or abridged: for, after the impeachment and attainder of the ſix rebel lords in 1715, three of them were from time to time reprieved by the crown; and at length received the benefit of the king's moſt gracious pardon.

The effect of ſuch pardon by the king, is to make the offender a new man; to acquit him of all corporal penalties and forfeitures annexed to that offence for which he obtains his pardon; and not ſo much to reſtore his former, as to give him a new credit and capacity. But nothing can reſtore or purify the blood when once corrupted, if the pardon be not allowed till after attainder, but the high and tranſcendant power of parliament. Yet if a perſon attainted receive the king's pardon, and afterwards hath a ſon, that ſon may be heir to his father; becauſe the father being made a new man, might tranſmit new inheritable blood; though, had he been born before the pardon, he could never have inherited at all.

Such is the nature of pardons in this kingdom. Theſe, like other good things, may doubtleſs be abuſed; and if they are in any inſtance, their abuſe deſerves cenſure: but that in their nature they ſhould be counted abſurd, arbitrary, and deſtructive of morality, can, we

ſuſpect,

Pardon. suſpect, proceed from nothing but from the preſumptive petulance of modern reformers, or from the new ſyſtem of civil equality.

Godwin's Inquiry concerning Political Juſtice.

We are told, however, by a late champion for the Rights of Man, that "the very word to a reflecting mind is fraught with abſurdity. 'What is the rule that ought in all caſes to preſcribe to my conduct?' Surely juſtice: underſtanding by juſtice the greateſt utility of the whole maſs of things that may be influenced by my conduct. 'What then is clemency?' It can be nothing but the pitiable egotiſm of him who imagines he can do ſomething better than juſtice. 'Is it right that I ſhould ſuffer conſtraint for a certain offence?' The rectitude of my ſuffering muſt be founded in its tendency to promote the general welfare. He therefore that pardons me, iniquitouſly prefers the imaginary intereſt of an individual, and utterly neglects what he owes to the whole. He beſtows that which I ought not to receive, and which he has no right to give. 'Is it right, on the contrary, that I ſhould not undergo the ſuffering in queſtion? Will he, by reſcuing me from ſuffering, do a benefit to me, and no injury to others?' He will then be a notorious delinquent, if he allow me to ſuffer. There is indeed a conſiderable defect in this laſt ſuppoſition. If, while he benefits me, he do no injury to others, he is infallibly performing a public ſervice. If I ſuffered in the arbitrary manner which the ſuppoſition includes, the whole would ſuſtain an unqueſtionable injury in the injuſtice that was perpetrated. And yet the man who prevents this odious injuſtice, has been accuſtomed to arrogate to himſelf the attribute of clement, and the apparently ſublime, but in reality tyrannical, name of forgiveneſs. For, if he do more than has been here deſcribed, inſtead of glory he ought to take ſhame to himſelf, as an enemy to the intereſt of human kind. If every action, and eſpecially every action in which the happineſs of a rational being is concerned, be ſuſceptible of a certain rule, then caprice muſt be in all caſes excluded: there can be no action, which if I neglect, I ſhall have diſcharged my duty; and, if I perform, I ſhall be entitled to applauſe."

Such is the reaſoning of this ſingular writer; reaſoning which, in our opinion, betrays want of feeling or ignorance of human nature. That human nature is ſuch as, in the aggregate, to need controul, no one who is acquainted with it will deny; and there appears to be no other method of controuling mankind but by general laws; and theſe laws may, through the natural imperfection of human affairs, be cruel in one caſe, where they are juſt in another. Caſes may likewiſe occur where the ſentence of the law, without its execution, will anſwer every purpoſe which could be expected from it: and where the execution of it would be extreme cruelty, though it might in ſtrict unfeeling language be called *juſtice*, becauſe in conformity with the letter of the law: Yet though ſuch caſes may and do often occur, it would indeed be abſurd to aboliſh any of thoſe laws which the ſecurity of civil ſociety has required; and therefore the only natural remedy againſt *legal injuſtice* is *the ſyſtem of pardons*.

Our author next goes on to trace the origin of pardons; and inſtead of a definite ſyſtem of law, we are told that it is neceſſary to have a court of reaſon, to which the deciſions of a court of law ſhall be brought for reviſal: a remedy apparently too vague and indeterminate to produce any laſting or good effect; and the propoſal of which reſults from ſuppoſing mankind more virtuous and more knowing than they really are. We are next led to conſider the abuſes of pardons: from whence our author would draw an argument for their abolition; a ſpecies of reaſoning unfair and unphiloſophical. He tells us, that the authority in this caſe is placed firſt in the judge, and next in the king and council. "Now (ſays he), laying aſide the propriety or impropriety of this particular ſelection, there is one grievous abuſe which ought to ſtrike the moſt ſuperficial obſerver. Theſe perſons with whom the principal truſt is repoſed, conſider their functions in this reſpect as a matter purely incidental, exerciſe them with ſupineneſs, and in many inſtances with the moſt ſcanty materials to guide their judgement. This grows in a conſiderable degree out of the very name of pardon, which implies a work of ſupererogatory benevolence."

Pardon.

Now it is obvious to remark, that pardons are in general granted in conſequence of an application from people who have more *than ſcanty materials to guide their judgements*, and on whoſe fidelity in relating the circumſtances of the caſe, confidence is placed or not according to their ſeveral characters. Our author next proceeds to the arbitrary character of pardons. "Such a ſyſtem (he ſays), to ſpeak it truly, is a lottery of death, in which each man draws his ticket for reprieve or execution, as undefinable accidents ſhall decide." The alluſion here to a lottery ticket is peculiarly unfortunate and indelicate, nor does the whole ſentence ſhow any great degree of candour. It is poſſible to define a particular crime, and to annex a particular puniſhment to the commiſſion of it; but the nature of morality conſiſts not in the external action, but in the motives which prompted to it. Definite law cannot, however, always make this diſtinction; and after the ſentence of the law is pronounced, it comes to be conſidered whether there are any alleviating circumſtances in the caſe; and whether there are or not, muſt depend on the particulars or accidents of the caſe: and it is indeed impoſſible to ſuppoſe that theſe accidents could be previouſly defined; their nature does not admit of it. To particularize and define every mode of an action which imagination can conceive, or which experience has ſhown us may happen, would indeed be an Herculean labour; and we might literally ſay with the apoſtle, *that the world could not contain the books that might be written*. We are, however, told, that "reaſon is a thouſand times more explicit and intelligible than law; and when we are accuſtomed to conſult her, the certainty of her deciſions would be ſuch, as men practiſed in our preſent courts are totally unable to conceive." Were reaſon, however, appointed to be appealed to in all caſes, and to be the final criterien, it would leave far greater room for villany than any mode at preſent in practice. *Reaſon* is a very uncertain and indefinite term, and may be made any thing, according to the circumſtances or paſſions of men. Our reforming neighbours the French have raiſed a ſtatue to *reaſon* and to *truth*; but what claim they have to either, Mr Godwin muſt himſelf decide.

We are next told that pardons are deſtructive to morality. "Another very important conſequence (ſays our author) grows out of the ſyſtem of pardons. A ſyſtem of pardons is a ſyſtem of unmitigated ſlavery. I am taught

Pardon ‖ Parenchyma.

taught to expect a certain desirable event; from what? From the clemency, the uncontrouled, unmerited kindness of a fellow mortal. Can any lesson be more degrading? The pusillanimous servility of the man, who devotes himself with everlasting obsequiousness to another, because that other having begun to be unjust, relents in his career; the ardour with which he confesses the rectitude of his sentence and the enormity of his deserts, will constitute a tale that future ages will find it difficult to understand. What are the sentiments in this respect that are alone worthy of a rational being? Give me that, and that only, which without injustice you cannot refuse. More than justice it would be disgraceful for me to ask, and for you to bestow. I stand upon the foundation of right. This is a title which brute force may refuse to acknowledge, but which all the force in the world cannot annihilate. By resisting this plea you may prove yourself unjust, but in yielding to it you grant me but my due. If, all things considered, I be the fit subject of a benefit, the benefit is merited: merit in any other sense is contradictory and absurd. If you bestow upon me unmerited advantage, you are a recreant from the general good. I may be base enough to thank you; but if I were virtuous, I should condemn you. These sentiments alone are consistent with true independence of mind. He that is accustomed to regard virtue as an affair of favour and grace, cannot be eminently virtuous. If he occasionally perform an action of apparent kindness, he will applaud the generosity of his sentiments; and if he abstain, he will acquit himself with the question, 'May I not do what I will with my own?' In the same manner, when he is treated benevolently by another, he will in the first place be unwilling to examine strictly into the reasonableness of this treatment, because benevolence, as he imagines, is not subject to any inflexibility of rule; and, in the second place, he will not regard his benefactor with that erect and unembarrassed mien, that complete sense of equality, which is the only immoveable basis of virtue and happiness."

Such is Mr Godwin's conclusion on this subject; and we leave it with our readers to determine, whether his system or that which we at present enjoy would be the more rigorous or unjust; or whether mankind have indeed arrived at that eminent pitch of virtue, as to disdain every favour which they do not absolutely merit. The Christian religion speaks a very different language.

PAREGORICS, in *Pharmacy*, medicines that assuage pain, otherwise called ANODYNES.

PAREIRA FLAVA, in the *Materia Medica*, a kind of oblong and large root brought from the Brasils.—It is certainly a diuretic of no mean character, and is said to have done great service in nephritic cases, pleurisies, and quinsies.

PARELCON, in *Grammar*, a figure by which a word or syllable is added to the end of another.

PAREMBOLE, in *Rhetoric*, a figure wherein something relating to the subject is inserted in the middle of a period. All the difference between the parembole and parenthesis, according to Vossius, is, that the former relates to the subject in hand, whereas the latter is foreign to it.

PARENCHYMA, in *Anatomy*, a term introduced by Erasistratus, signifying all that substance which is contained in the interstices betwixt the blood vessels of the viscera, which he imagined to be extravasated and concreted blood.

PARENCHYMA of Plants. Grew applies the term *parenchyma* to the pith or pulp, or that inner part of a fruit or plant through which the juice is supposed to be distributed. See PLANTS.

Parent.

PARENT, a term of relation applicable to those from whom we immediately derive our being. See *MORAL Philosophy*, N° 129. and 137.

To this article belongs an inquiry into, 1. The legal duties of parents to their legitimate children. 2. Their power over them.

I. The duties of parents to legitimate children consist in three particulars; their *maintenance*, their *protection*, and their *education*.

1. The duty of parents to provide for the *maintenance* of their children, is a principle of natural law; an obligation, says Puffendorff, laid on them not only by nature herself, but by their own proper act, in bringing them into the world; for they would be in the highest manner injurious to their issue, if they only gave their children life, that they might afterwards see them perish. By begetting them, therefore, they have entered into a voluntary obligation, to endeavour, as far as in them lies, that the life which they have bestowed shall be supported and preserved. And thus the children will have a perfect right of receiving maintenance from their parents. And the president Montesquieu has a very just observation upon this head, that the establishment of marriage, in all civilized states, is built on this natural obligation of the father to provide for his children; for that ascertains and makes known the person who is bound to fulfil this obligation; whereas, in promiscuous and illicit conjunctions, the father is unknown; and the mother finds a thousand obstacles in her way; shame, remorse, the constraint of her sex, and the rigour of laws, that stifle her inclinations to perform this duty; and besides, she generally wants ability. *Blackst. Comment.*

The municipal laws of all well regulated states have taken care to enforce this duty: though Providence has done it more effectually than any laws, by implanting in the breast of every parent that natural στοργη, or insuperable degree of affection, which not even the deformity of person or mind, not even the wickedness, ingratitude, and rebellion of children, can totally suppress or extinguish.

The civil law obliges the parent to provide maintenance for his child; and if he refuse, *judex de ea re cognoscet*. Nay, it carries this matter so far, that it will not suffer a parent at his death totally to disinherit his child, without expressly giving his reason for so doing; and there are 14 such reasons reckoned up, which may justify such disinherison. If the parent alleged no reason, or a bad, or a false one, the child might set the will aside, *tanquam testamentum inofficiosum*, a testament contrary to the natural duty of the parent. And it is remarkable under what colour the children were to move for relief in such a case; by suggesting, that the parent had lost the use of his reason when he made the *inofficious* testament. And this, as Puffendorff observes, was not to bring into dispute the testator's power of disinheriting his own offspring; but to examine the motives upon which he did it; and if they were found defective in reason, then to set them aside. But perhaps this is going rather too far: every man has, or ought to have, by the laws of society, a power over his own property: and, as Grotius very well distinguishes, natural right obliges to give a *ne-*

cessary

Parent. *ceſſary* maintenance to children; but what is more than that they have no right to, than as it is given by the favour of their parents, or the poſitive conſtitutions of the municipal law.

Let us next ſee what proviſion our own laws have made for this natural duty. It is a principle of law, that there is an obligation on every man to provide for thoſe deſcended from his loins; and the manner in which this obligation ſhall be performed, is thus pointed out. The father and mother, grandfather and grandmother, of poor impotent perſons, ſhall maintain them at their own charges, if of ſufficient ability, according as the quarter ſeſſions ſhall direct; and, if a parent runs away, and leaves his children, the church wardens and overſeers of the pariſh ſhall ſeize his rents, goods, and chattels, and diſpoſe of them towards their relief. By the interpretations which the courts of law have made upon theſe ſtatutes, if a mother or grandmother marries again, and was before ſuch ſecond marriage of ſufficient ability to keep the child, the huſband ſhall be charged to maintain it; for this being a debt of her's, when ſingle, ſhall, like others, extend to charge the huſband. But, at her death, the relation being diſſolved, the huſband is under no farther obligation.

No perſon is bound to provide a maintenance for his iſſue, unleſs where the children are impotent and unable to work, either though infancy, diſeaſe, or accident; and then is only obliged to find them with neceſſaries, the penalty on refuſal being no more than 20s. a month. For the policy of our laws, which are ever watchful to promote induſtry, did not mean to compel a father to maintain his idle and lazy children in eaſe and indolence; but thought it unjuſt to oblige the parent againſt his will, to provide them with ſuperfluities, and other indulgences of fortune; imagining they might truſt to the impulſe of nature, if the children were deſerving of ſuch favours. Yet, as nothing is ſo apt to ſtifle the calls of nature as religious bigotry, it is enacted, that if any Popiſh parent ſhall refuſe to allow his Proteſtant child a fitting maintenance, with a view to compel him to change his religion, the lord chancellor ſhall by order of court conſtrain him to do what is juſt and reaſonable. But this did not extend to perſons of another religion, of no leſs bitterneſs and bigotry than the Popiſh: and therefore, in the very next year, we find an inſtance of a Jew of immenſe riches, whoſe only daughter having embraced Chriſtianity, he turned her out of doors; and on her application for relief, it was held ſhe was entitled to none. But this gave occaſion to another ſtatute, which ordains, that if Jewiſh parents refuſe to allow their Proteſtant children a fitting maintenance, ſuitable to the fortune of the parent, the lord chancellor, on complaint, may make ſuch order therein as he ſhall ſee proper.

Our law has made no proviſion to prevent the diſinheriting of children by will; leaving every man's property in his own diſpoſal, upon a principle of liberty in this as well as every other action; though perhaps it had not been amiſs if the parent had been bound to leave them at the leaſt a neceſſary ſubſiſtence. Indeed, among perſons of any rank or fortune, a competence is generally provided for younger children, and the bulk of the eſtate ſettled upon the eldeſt by the marriage articles. Heirs alſo, and children, are favourites of our courts of juſtice, and cannot be diſinherited by any dubious or ambiguous words; there being required the utmoſt certainty of the teſtator's intentions to take away the right of an heir. Parent.

2. From the duty of maintenance we may eaſily paſs to that of *protection*; which is alſo a natural duty, but rather permitted than enjoined by any municipal laws; nature, in this reſpect, working ſo ſtrongly as to need rather a check than a ſpur. A parent may, by our laws, maintain and uphold his children in their law-ſuits, without being guilty of the legal crime of maintaining quarrels. A parent may alſo juſtify an aſſault and battery in defence of the perſons of his children; nay, where a man's ſon was beaten by another boy, and the father went near a mile to find him, and there revenged his ſon's quarrel by beating the other boy, of which beating he afterwards unfortunately died; it was not held to be murder, but manſlaughter merely. Such indulgence does the law ſhow to the frailty of human nature, and the workings of parental affection.

3. The laſt duty of parents to their children is that of giving them an *education* ſuitable to their ſtation in life: a duty pointed out by reaſon and of far the greateſt importance of any. For, as Puffendorff very well obſerves, it is not eaſy to imagine or allow, that a parent has conferred any conſiderable benefit upon his child by bringing him into the world, if he afterwards entirely neglects his culture and education, and ſuffers him to grow up like a mere beaſt, to lead a life uſeleſs to others, and ſhameful to himſelf. Yet the municipal laws of moſt countries ſeem to be defective in this point by not conſtraining the parent to beſtow a proper education upon his children. Perhaps they thought it puniſhment enough to leave the parent who neglects the inſtruction of his family, to labour under thoſe griefs and inconveniences which his family, ſo uninſtructed, will be ſure to bring upon him. Our laws, though their defects in this particular cannot be denied, have in one inſtance made a wiſe proviſion for breeding up the riſing generation; ſince the poor and laborious part of the community, when paſt the age of nurture, are taken out of the hands of their parents, by the ſtatutes for apprenticing poor children; and are placed out by the public in ſuch a manner as may render their abilities, in their ſeveral ſtations, of the greateſt advantage to the commonwealth. The rich indeed are left at their own option, whether they will breed up their children to be ornaments or diſgraces to their family. Yet in one caſe, that of religion, they are under peculiar reſtrictions; for it is provided that if any perſon ſends any child under his government beyond the ſeas, either to prevent its good education in England, or in order to enter into, or reſide in, any Popiſh college, or to be inſtructed, perſuaded, or ſtrengthened in the Popiſh religion; in ſuch caſe, beſides the diſabilities incurred by the child ſo ſent, the parent or perſon ſending ſhall forfeit 100l. which ſhall go to the ſole uſe and benefit of him that ſhall diſcover the offence. And if any parent, or other, ſhall ſend or convey any perſon beyond ſea, to enter into, or be reſident in, or trained up in, any priory, abbey, nunnery, Popiſh univerſity, college or ſchool, or houſe of Jeſuits or prieſts, or in any private Popiſh family, in order to be inſtructed, perſuaded or confirmed, in the

Popiſh

Parent. Popiſh religion; or ſhall contribute any thing towards their maintenance when abroad by any pretext whatever, the perſon both ſending and ſent ſhall be diſabled to ſue in law or equity, or to be executor or adminiſtrator to any perſon, or to enjoy any legacy or deed of gift, or to bear any office in the realm, and ſhall forfeit all his goods and chattels, and likewiſe all his real eſtate for life. See NONCONFORMISTS.

II. The *power* of parents over their children is derived from the former conſideration, their *duty;* this authority being given them, partly to enable the parent more effectually to perform his duty, and partly as a recompenſe for his care and trouble in the faithful diſcharge of it. And upon this ſcore the municipal laws of ſome nations have given a much larger authority to the parents than others. The ancient Roman laws gave the father a power of life and death over his children; upon this principle, that he who gave had alſo the power of taking away. But the rigour of theſe laws was ſoftened by ſubſequent conſtitutions: ſo that we find a father baniſhed by the emperor Hadrian for killing his ſon, though he had committed a very heinous crime; upon this maxim, that *patris poteſtas in pietate debet, non in atrocitate, conſiſtere.* But ſtill they maintained to the laſt a very large and abſolute authority: for a ſon could not acquire any property of his own during the life of his father; but all his acquiſitions belonged to the father, or at leaſt the profits of them for his life.

The power of a parent by the Engliſh law is much more moderate; but ſtill ſufficient to keep the child in order and obedience. He may lawfully correct his child, being under age, in a reaſonable manner: for this is for the benefit of his education. The conſent or concurrence of the parent to the marriage of his child under age, was alſo directed by our ancient law to be obtained: but now it is abſolutely neceſſary; for without it the contract is void. And this alſo is another means which the law has put into the parent's hands, in order the better to diſcharge his duty; firſt, of protecting his children from the ſnares of artful and deſigning perſons; and next of ſettling them properly in life, by preventing the ill conſequences of too early and precipitate marriages. A father has no other power over his ſon's eſtate, than as his truſtee or guardian: for though he may receive the profits during the child's minority, yet he muſt account for them when he comes of age. He may indeed have the benefit of his children's labour while they live with him and are maintained by him; but this is no more than he is entitled to from his apprentices or ſervants. The legal power of a father (for a mother, as ſuch, is entitled to no power, but only to reverence and reſpect), the power of a father, we ſay, over the perſons of his children ceaſes at the age of 21; for they are then enfranchiſed by arriving at years of diſcretion, or that point which the law has eſtabliſhed (as ſome muſt neceſſarily be eſtabliſhed) when the empire of the father, or other guardian, gives place to the empire of reaſon. Yet, till that age arrives, this empire of the father continues even after his death; for he may by his will appoint a guardian to his children. He may alſo delegate part of his parental authority, during his life, to the tutor or ſchoolmaſter of his child; who is then *in loco parentis*, and has ſuch a portion of the power of the parent committed to his charge, viz. that of reſtraint and correction, as may be neceſſary to anſwer the purpoſes for which he is employed. Parent.

In the Gentleman's Magazine for 1750, we have the following caſe of conſcience. "A perſon has his own parents and his own children living, both parties equally indigent, both equally incapable of aſſiſting themſelves, and both equally earneſt in calling upon him for relief. Things are ſo circumſtanced that he can poſſibly aſſiſt but one party, and not both. *Query*, Which party has the greateſt claim to his aſſiſtance, and to which is he obliged, by all ties human and divine, to give the preference?" One ſolves this difficulty, by informing us of a pretty print done at Rome, repreſenting a young woman ſuckling her aged father, on which the following lines are quoted.

My child and father vital nurture crave,
Parental, filial, fondneſs both would ſave;
But if a nurſling only one can live,
I chooſe to ſave the life I cannot give.

Here we find the preference given to the parent; and another correſpondent gives the ſame deciſion in theſe words. "The obligations ariſing from nature, and natural affection, ſeem to be in this caſe reciprocal and equipollent; the child is as ſtrongly attracted to the parent, as the parent to the child. But will not filial gratitude operate and decide in favour of the parents? Does not the perſon, either mediately or immediately owe his preſent power and abilities to relieve, to his parents? and are not they on that account beſt entitled to relief? Does not the fifth commandment declare more ſtrongly in favour of the parents, than any other divine precept does in favour of the children? If a perſon had an opportunity given him of delivering either his parent or his child (but not both) from certain death, I dare ſay the voice of nature and of mankind would applaud him that ſaved his parent, and condemn him that ſhould prefer his child. There is more of ſelfiſhneſs in preferring the child; and to ſave the parent ſeems to me to be much the more generous, noble, and exalted conduct. It is indeed, upon the whole, a melancholy alternative; but if both parties continue importunate, and neither will relinquiſh their claims in favour of the other, I ſay relieve the parent." There are two correſpondents, however, who think differently, and their reaſons are as follow: "A perſon's children have the greateſt claim to his aſſiſtance, and he is obliged by all ties to prefer them, in that reſpect, to his parents. It is true, when a man's parents are in want, they have a claim to his aſſiſtance; but that claim is not equal to that which his children have. His parents he has of neceſſity: his children, of choice. It is his duty, before he beget children, to conſider how he is to provide for them: and by being wilfully the cauſe of their exiſtence, he comes under ſuch an obligation to provide for their comfortable ſubſiſtence, as muſt be ſtronger than any obligation of that kind he can be under to perſons with whom his connexion is involuntary. But nature and reaſon point it out as the duty of all parents to provide for their children; but not *vice verſa*. If a man's parents happen to be indigent, and he himſelf able, he is bound to maintain them out of reſpect and gratitude: but his obligation to provide for his children is

Parent. is a debt of ſtrict juſtice; and therefore ought to be preferred. Nevertheleſs the deſcription of the caſe to which the query is ſubjoined, is ſo general, that it is eaſy to figure a caſe according to that deſcription in which the perſon ought to prefer his parents. This obligation to provide for his children may have been diſſolved by monſtrous ingratitude, ſuch as their plotting againſt his life; or he may have given them proper education, and ample proviſions, which they have riotouſly ſquandered away: in either of which caſes it is thought he is undoubtedly diſcharged from his obligation. But if they have loſt their portion purely by misfortunes, without their fault, it is thought his obligation to aſſiſt them is not wholly extinguiſhed; and in that caſe their claim to his aſſiſtance, or that of his parents, is preferable." "I find (ſays the author of the laſt anſwer) that all your correſpondents agree, that the life of the parent is to be preſerved. It is very certain, that the relation between me and my child is exactly equal to that which is between me and my parent; and therefore relation cannot decide in favour of the one or the other: I muſt then be determined by a different conſideration; and I know of none more weighty than the following. If I preſerve the life of my child, I am inſtrumental in giving life to all his deſcendants, which may, perhaps, be very numerous; but if I preſerve the life of my parent, I preſerve a ſingle life only, and that a ſhort one. I therefore ſay, *relieve the child.* But it is thought that the voice of nature will applaud the perſon who preſerves the parent: if ſo, nature muſt applaud a rule which ſhe herſelf does not obſerve: it is natural for old men to die before young ones. Beſides, the command, *Be fruitful and multiply, and replenish the earth*, may be oppoſed to the fifth commandment." Still, however, it is doubtleſs difficult to determine in ſuch caſes when they occur, as there are no fixed rules whereby to decide. With reſpect to the power of parents and the duty of children, much may be ſaid. There are, however, ſcarcely any inſtances where both are oftener abuſed than with reſpect to marriage. This, as it is the moſt important event in the civil life either of a man or woman, ſo it is often rendered peculiarly unfortunate, by precipitate folly and want of duty in children; and as often through the unreaſonable ſeverity of parents. As a child is bound not to give unreaſonable offence to a parent in the choice of a partner; ſo neither ought the parent to impoſe any improper or arbitrary reſtraint upon the child.

The power of a parent in China is very great; for a father, while living, has the power of an abſolute deſpotic tyrant, and after his death is worſhipped as a god. Let a ſon become ever ſo rich, and a father ever ſo poor, there is no ſubmiſſion, no point of obedience, that the latter cannot command, or that the former can refuſe. The father is abſolute maſter, not only of his ſon's eſtate, but alſo of his concubines and children, who, whenever they diſpleaſe him, he may ſell to ſtrangers. If a father accuſes his ſon before a mandarin, there needs no proof of his guilt; for they cannot believe that any father can be ſo unnatural as to bring a falſe accuſation againſt his own ſon. But ſhould a ſon be ſo inſolent as to mock his father, or arrive at ſuch a pitch of wickedneſs as to ſtrike him, all the province where this ſhameful act of violence is committed is alarmed; it even becomes the concern of the whole empire; the emperor himſelf judges the criminal. All the mandarins near the place are turned out of their poſts, eſpecially thoſe of the town where he lived, for having been ſo negligent in their inſtructions; and all the neighbours are reprimanded for neglecting, by former puniſhments, to put a ſtop to the wickedneſs of the criminal before it arrived at ſuch flagitiouſneſs. As to the unhappy wretch himſelf, they cut him into a thouſand pieces, burn his bones, level his houſe to the ground, and even thoſe houſes that ſtand near it, and ſet up monuments and memorials of the horrid deed. Parent.

The emperor of China, who is one of the moſt powerful and deſpotic monarchs upon earth, pays the greateſt attention to his mother. An inſtance of this Pere Amyot relates as having happened at Pekin, A. D. 1752, when the emperor's mother entered her 60th year, which, among the Chineſe, is accounted a very remarkable period. Groſier likewiſe particularly deſcribes the homage the emperor pays his mother every new-year's day in the palace, at which ceremony all the great officers of his court aſſiſt. See CHILDREN, *FILIAL Piety*, *PARENTAL Affection*, &c.

PARENT, *Anthony*, a mathematician, was born at Paris in 1666. He ſhowed an early propenſity to mathematics. He accuſtomed himſelf to write remarks upon the margins of the books which he read; and he had filled a variety of books with a kind of commentary at the early age of thirteen. At fourteen he was put under a maſter, who taught rhetoric at Chartres. It was here that he happened to ſee a dodecaëdron, upon every face of which was delineated a ſun dial, except the loweſt, whereon it ſtood. Struck as it were inſtantaneouſly with the curioſity of theſe dials, he attempted drawing one himſelf: but having a book which only ſhowed the practical part without the theory, it was not till after his maſter came to explain the doctrine of the ſphere to him that he began to underſtand how the projection of the circles of the ſphere formed ſun dials. He then undertook to write a Treatiſe upon Gnomonics. The piece was indeed rude and unpoliſhed; but it was entirely his own, and not borrowed. About the ſame time he wrote a book of Geometry, in the ſame taſte, at Beauvois. His friends then ſent for him to Paris to ſtudy the law; and, in obedience to them, he ſtudied a courſe in that faculty; which was no ſooner finiſhed, than, urged by his paſſion for mathematics, he ſhut himſelf up in the college of Dormans, that no avocation might take him from his beloved ſtudy: and, with an allowance of leſs than 200 livres a-year, he lived content in this retreat, from which he never ſtirred but to the Royal College, in order to hear the lectures of M. de la Hire or M. de Sauveur. When he found himſelf capable of teaching others, he took pupils: and fortification being a branch of mathematics which the war had brought into particular notice, he turned his attention to it; but after ſome time began to entertain ſcruples about teaching what he had never ſeen, and knew only by the force of imagination. He imparted this ſcruple to M. Sauveur, who recommended him to the marquis d'Aligre, who luckily at that time wanted to have a mathematician with him. Parent made two campaigns with the marquis, by which he

Parental. he inſtructed himſelf ſufficiently in viewing fortified places; of which he drew a number of plans, though he had never learned the art of drawing. From this period he ſpent his time in a continual application to the ſtudy of natural philoſophy, and mathematics in all its branches, both ſpeculative and practical; to which he joined anatomy, botany, and chemiſtry. His genius managed every thing, and yet he was inceſſant and indefatigable in his application. M. de Billettes, who was admitted into the Academy of Sciences at Paris in 1699, with the title of their mechanician, nominated for his diſciple Parent, who excelled chiefly in this branch. It was ſoon diſcovered in this ſociety, that he engaged in all the various ſubjects which were brought before them; and indeed that he had a hand in every thing. But this extent of knowledge, joined to a natural impetuoſity of temper, raiſed in him a ſpirit of contradiction, which he indulged on all occaſions; ſometimes to a degree of precipitancy highly culpable, and often with but little regard to decency. Indeed the ſame behaviour was ſhown to him, and the papers which he brought to the academy were often treated with much ſeverity. He was charged with obſcurity in his productions; and he was indeed ſo notorious for this fault, that he perceived it himſelf, and could not avoid correcting it. The king had, by a regulation in 1716, ſuppreſſed the claſs of ſcholars of the academy, which ſeemed to put too great an inequality betwixt the members. Parent was made a joint or aſſiſtant member for geometry: but he enjoyed this promotion but a ſhort time; for he was taken off by the ſmallpox the ſame year, at the age of 50. He was author of a great many pieces, chiefly on mechanics and geometry.

PARENTAL, ſomething belonging to the relation of parent. See PARENT.

PARENTAL Affection, the endearing attachment of parents to their children, including in it love; a deſire of doing good to thoſe who by an act of our own depend upon us for all that they enjoy. Nature even excites this affection in brutes: but in them it continues only ſo long as it is neceſſary for the preſervation of their offſpring; for when theſe are able to provide for themſelves, it ceaſes, and the relation is forgotten. In man, however, though it leſſens, or at leaſt becomes leſs anxious as the dependence of the child becomes leſs, it never entirely ceaſes, except in ſome few inſtances of extreme depravity. Authors, however, have imagined, and Lord Kames * among the reſt, that after the child is provided for, and no more depends on the parent, all affection would ceaſe, were it not artificially preſerved and confirmed by habit. Whether his lordſhip, in this opinion, be right or wrong, we ſhall not pretend to ſay. One thing, however, is certain, that be it natural or not, it is one of the greateſt comforts of life, even when all dependence has ceaſed. It matters not that there are many inſtances where this comfort is not felt. Human depravity has often obliterated the fineſt feelings of the mind; and it is not to be wondered at if in ſome inſtances it do ſo in the caſe before us. A good heart certainly can enjoy no greater ſatisfaction than that ariſing from grateful returns of kindneſs and affection to an aged parent. As the vexations which parents receive from their children haſten the approach of age, and double the force of years; ſo the comforts which they reap from them are balm to all other ſorrows, and diſappoint the injuries of time. Parents repeat their lives in their offſprings; and their concern for them is ſo near, that they feel all their ſufferings, and taſte all their enjoyments, as much as if they regarded their own perſons. However ſtrong we may ſuppoſe the fondneſs of a father for his children, yet they will find more lively marks of tenderneſs in the boſom of a mother. There are no ties in nature to compare with thoſe which unite an affectionate mother to her children, when they repay her tenderneſs with obedience and love. Parental || Parenzo.

We have a remarkable inſtance of parental affection in Zaleucus † prince of the Locrines; who made a decree, that whoever was convicted of adultery ſhould be puniſhed with the loſs of both his eyes. Soon after this eſtabliſhment, the legiſlator's own ſon was apprehended in the very fact, and brought to a public trial. How could the father acquit himſelf in ſo tender and delicate a conjuncture? Should he execute the law in all its rigour, this would be worſe than death to the unhappy youth: ſhould he pardon ſo notorious a delinquent, this would defeat the deſign of his ſalutary inſtitution. To avoid both theſe inconveniences, he ordered one of his own eyes to be pulled out and one of his ſon's.

Diodorus Siculus alſo, lib. 34. relates a ſurpriſing inſtance of the ſame warm affection. Cambalus, a young gentleman of character and fortune in the city of Mulgeatum, being one day out courſing, was way-laid, and very near being robbed and murdered by the banditti who infeſted that part of the country. Gorgus, the young gentleman's father, happened to come by at the very inſtant, to whom Cambalus related the danger he was in. The ſon was on foot, the father on horſeback; but no ſooner had he heard the melancholy tale, than he leapt from his horſe, deſired his ſon to mount, and make the beſt of his way into the city: but Cambalus, preferring his father's ſafety to his own, would by no means conſent to it; on the contrary, conjured his father to leave him, and take care of himſelf. The father, ſtruck with the generoſity and affection of his ſon, added tears to entreaties, but all to no purpoſe. The conteſt between them is better conceived than deſcribed—while bathed in tears, and beſeeching each other to preſerve his own life, the banditti approached and ſtabbed them both.

Amongſt the ancient Greeks, the ſentiments of parental affection were exceedingly ſtrong and ardent. The mutual tenderneſs of the huſband and the wife was communicated to their offſpring; while the father viewed in his child the charms of its mother, and the mother perceived in it the manly graces of its father. As paternal kindneſs is the moſt ſimple and natural expanſion of ſelf-love, ſo there are innumerable inſtances of it in all countries ſavage and civilized.

PARENTALIA, in antiquity, funeral obſequies, or the laſt duties paid by children to their deceaſed parents.

PARENTHESIS, in *grammar*, certain intercalary words inſerted in a diſcourſe, which interrupt the ſenſe or thread, but ſeem neceſſary for the better underſtanding of the ſubject.

PARENZO, a ſmall but ſtrong town of Italy, and in Iſtria, with a biſhop's ſee and a good harbour; ſeated

* *Sketches of the Hiſtory of Man.*

† *Ælian*, lib. xiii.

Pareſis || Parhelion

ed on the gulf of Venice, in E. Long. 13. 46. N. Lat. 39. 28. It ſubmitted to the Venetians in 1267.

PARESIS, in *Medicine*, a palſy of the bladder, wherein the urine is either ſuppreſſed or diſcharged involuntarily.

PARGETING, in building, is uſed for the plaſtering of walls, and ſometimes for plaſter itſelf.

Pargeting is of various kinds: as, 1. White lime and hair mortar laid on bare walls. 2. On bare laths, as in partitioning and plain ceiling. 3. Rendering the inſides of walls, or doubling partition walls. 4. Rough-caſting on heart laths. 5. Plaſtering on brick work, with finiſhing mortar, in imitation of ſtone work; and the like upon heart laths.

PARHELION, or PARHELIUM, formed from *παρα near*, and *ἡλιος ſun*, in *Natural Philoſophy*, a mock ſun or meteor, in form of a very bright light, appearing on the one ſide of the ſun.

Appearances of this kind have been made mention of both by the ancients and moderns. Ariſtotle obſerves, that in general they are ſeen only when the ſun is near the horizon, though he takes notice of two that were ſeen in Boſphorus from morning to evening; and Pliny has related the times when ſuch phenomena were obſerved at Rome. Gaſſendi ſays, that in 1635 and 1636 he often ſaw one mock ſun. Two were obſerved by M. de la Hire in 1689; and the ſame number by Caſſini in 1693, Mr Grey in 1700, and Dr Halley in 1702: but the moſt celebrated appearances of this kind were ſeen at Rome by Scheiner, by Muſchenbrock at Utrecht, and by Hevelius at Sedan. By the two former, four mock ſuns were obſerved, and by the latter ſeven.

Parhelia are apparently of the ſame ſize with the ſun, though not always of the ſame brightneſs, nor even of the ſame ſhape; and when a number appear at once, there is ſome difference in both theſe reſpects among them. Externally they are tinged with colours like the rainbow; and many have a long fiery tail oppoſite to the ſun, but paler towards the extremity. Parhelia are generally accompanied with coronas, ſome of which are tinged with rainbow colours, but others are white. They differ in number and ſize; but all agree in breadth, which is that of the apparent diameter of the ſun.

A very large white circle, parallel to the horizon, generally paſſes through all the parhelia; and, if it were entire, it would go through the centre of the ſun. Sometimes there are arcs of leſſer circles concentric to this, touching thoſe coloured circles which ſurround the ſun. They are alſo tinged with colours, and contain other parhelia. There are alſo ſaid to have been other circles obliquely ſituated with reſpect to all thoſe we have mentioned; but of this we have met with no authentic account. The order of the colours in theſe circles is the ſame as in the rainbow; but on the inſide, with reſpect to the ſun, they are red, as is alſo obſerved in many other coronas.

Parhelia have been viſible for 1, 2, 3, and 4 hours together; and in North America they are ſaid to continue ſome days, and to be viſible from ſunriſe to ſunſet.

When the parhelia diſappear, it ſometimes rains, or there falls ſnow in the form of oblong ſpiculæ, as Maraldi, Weidler, Krafft, and others, have obſerved; and becauſe the air in North America abounds with ſuch frozen ſpiculæ, which are even viſible to the eye, according to Ellis and Middleton, ſuch particles have been thought to be the cauſe of all coronas and parhelia. Parhelion.

Mr Ellis ſays, that, at Churchill in Hudſon's Bay, the riſing of the ſun is always preceded by two long ſtreams of red light, one on each ſide of him, and about 20° diſtant from him. Theſe riſe as the ſun riſes; and as they grow longer begin to bend towards each other, till they meet directly over the ſun, juſt as he riſes, forming there a kind of parhelion or mock ſun. Theſe two ſtreams of light, he ſays, ſeem to have their ſource in two other parhelia, which riſe with the true ſun; and in the winter ſeaſon, when the ſun never riſes above the haze or fog, which he ſays is conſtantly found near the horizon, all theſe accompany him the whole day, and ſet with him in the ſame manner as they riſe. Once or twice he ſaw a fourth parhelion directly under the true ſun; but this, he ſays is not common. Theſe facts being conſtant, are very valuable, and may throw great light on the theory of theſe remarkable phenomena.

Sometimes parhelia appear in a different manner; as when three ſuns have been ſeen in the ſame vertical circle, well defined, and touching one another. The true ſun was in the middle, and the loweſt touched the horizon; and they ſet one after the other. This appearance was ſeen by M. Maleziew in 1722. Other appearances ſimilar to this are recited by M. Muſchenbroeck.

Sometimes the ſun has riſen or ſet with a luminous tail projecting from him, of the ſame breadth with his diameter, and perpendicular to the horizon. Such an appearance was ſeen by Caſſini in 1672 and 1692, by De la Hire in 1702, and by Mr Ellis in Hudſon's Bay.

As M. Feuillée was walking on the banks of the river La Plata, he ſaw the ſun riſing over the river with a luminous tail projecting downwards, which continued till he was ſix degrees high.

Paraſelenæ, or mock moons, have alſo been ſeen, accompanied with tails and coloured circles, like thoſe which accompany the parhelia. An account of ſeveral, and a particular deſcription of a fine appearance of this kind, may be ſeen in Muſchenbroeck.

The Roman phenomenon, obſerved by Scheiner, is famous on account of its having been the firſt appearance of the kind that engaged the attention of philoſophers. It is repreſented in fig. 1.; in which A is the place of the obſerver, B his zenith, C the true ſun, AB a plane paſſing through the obſerver's eye, the true ſun, and the zenith. About the ſun C, there appeared two concentric rings, not complete, but diverſified with colours. The leſſer of them, DEF, was fuller, and more perfect; and though it was open from D to F, yet thoſe ends were perpetually endeavouring to unite; and ſometimes they did ſo. The outer of theſe rings was much fainter, ſo as ſcarcely to be diſcernible. It had, however, a variety of colours; but was very inconſtant. The third circle, KLMN, was very large, and all over white, paſſing through the middle of the ſun, and everywhere parallel to the horizon. At firſt this circle was entire; but towards the end of the appearance it was weak and ragged, ſo as hardly to be perceived from M towards N. Plate CCCCIV. Fig. 4.

Parhelion. In the interſection of this circle, and the outward iris GKI, there broke out two parhelia or mock ſuns N and K, not quite perfect; K being rather weak, but N ſhone brighter and ſtronger. The brightneſs of the middle of them was ſomething like that of the ſun; but towards the edges they were tinged with colours like thoſe of the rainbow; and they were uneven and ragged. The parhelion N was a little wavering, and ſent out a ſpiked tail, NP, of a colour ſomewhat fiery, the length of which was continually changing.

The parhelia at L and M in the horizontal ring were not ſo bright as the former; but were rounder, and white, like the circle in which they were placed. The parhelion N diſappeared before K; and while M grew fainter, K grew brighter, and vaniſhed the laſt of all.

It is to be obſerved farther, that the order of the colours in the circles DEF, GKN, was the ſame as in the common halos, namely, red next the ſun; and the diameter of the inner circle was alſo about 45 degrees; which is the uſual ſize of a halo.

The reverend Dr Hamilton ſent the following account of parhelia, ſeen at Cookſtown, to the Royal Iriſh Academy.

"Wedneſday, September 24th, 1783, as I was preparing to obſerve the ſun paſſing the meridian, before the firſt limb touched the centre wire, it was obſcured by a dark well defined cloud, about 10° in diameter. Upon going to the door of the tranſit room, to ſee if it was likely ſoon to paſs off the diſk of the ſun, I obſerved the following phenomena: From the weſtern edge of the cloud iſſued a luminous arc parallel to the horizon, perfectly well defined, extending exactly to the northern meridian; it was about 30′ broad, white, and ended in a blunted termination. On it were two parhelia; the neareſt to the ſun diſplaying the priſmatic colours; the remote one white, and both ill defined. In a ſhort time the cloud had paſſed off, and ſhowed the luminous almucantar, reaching perfect to the true ſun. While things were thus ſituated, I meaſured with an accurate ſextant the diſtances of the parhelia; I found the coloured one 26°, the remoter one 90°, from the true ſun. Juſt as I had done this, a new and priſmatic circle ſurrounded the ſun immediately with the priſmatic parhelion. And now another coloured parhelion appeared on the eaſtern board.—The ſextant with its face up and down, exactly meaſured this and the former at the original diſtance of 26°; the luminous almucantar ſtill remaining perfect. In about 10 or 12 minutes whitiſh hazy clouds came on, and obſcured all theſe uncommon appearances.—I did not obſerve that the atmoſpherical phenomena before or after were at all uncommon. The wind a light breeze at SSW. Bar. 29.6 riſing. Thermometer 55°.

Fig. 2. In fig. 2. SM repreſents the ſouth meridian; NM the north meridian; PP the priſmatic circle, with two priſmatic ſuns or parhelia, at 26° diſtance on each ſide the true ſun; W the white parhelion, at 90° diſtance from the true ſun; LA the luminous almucantar; and HO the horizon.

Various hypotheſes have been framed by philoſophers to account for this phenomenon, particularly by M. Marriotte, Deſcartes, and Huygens. None of them, however, are ſatisfactory: but thoſe readers who wiſh to become acquainted with them may conſult Huygens's Diſſertation on this ſubject, in Smith's Optics, Book I. ch. 11. Muſchenbroeck's Introduction, &c. Vol. XI. p. 1038, &c. 4to.; but eſpecially Dr Prieſtley's Hiſtory of Viſion, Light, and Colours, Vol. II. p. 613, &c.

Paria ‖ Parias.

PARIA, or NEW ANDALUSIA, a country of Terra Firma in South America; bounded on the north by the north ſea; on the eaſt by Surinam; on the weſt by New Granada and the Caraccas: and on the ſouth by Guiana. It produces colouring drugs, gums, medicinal roots, Brazil wood, ſugar, tobacco, and ſome valuable timber; the inland parts being woody and mountainous, but interſperſed with fine valleys that yield corn and paſturage. Comana is the capital town.

PARIAN CHRONICLE. See *ARUNDELIAN Marbles*, and *Parian CHRONICLE*.

Under the article *Parian CHRONICLE*, we have been as full as the ſubject ſeemed to require, or as the nature of our work would admit. It is unneceſſary, therefore, to reſume it in this place. Such of our readers, however, as wiſh for further information on this ſubject (which is equally intereſting to the ſcholar and to the antiquarian) we muſt refer to Robertſon's attack upon their authenticity, and to Gough's learned and judicious vindication of the authenticity, publiſhed in *Archæologia* for 1789. The extent of his learning, and the ſolidity of his arguments, appear upon the whole to outweigh the objections of his ſenſible and plauſible opponent. Hewlett's book upon the ſame ſide of the queſtion may command ſome degree of attention. It is ingenious. See *SANDWICH Marble*.

PARIAN Marble, among the ancients, the white marble uſed by them, and to this day, for carving ſtatues, &c. and called by us at this time *ſtatuary marble*.

Too many of the later writers have confounded all the white marbles under the name of the *Parian;* and among the workmen, this and all the other white marbles have the common name of *alabaſters;* ſo that it is in general forgotten among them, that there is ſuch a thing as alabaſter different from marble; which, however, is truly the caſe. Almoſt all the world alſo have confounded the Carrara marble with this, though they are really very different; the Carrara kind being of a finer texture and clearer white than the Parian; but leſs bright aud ſplendid, harder to cut, and not capable of ſo glittering a poliſh.

The true Parian marble has uſually ſomewhat of a faint bluiſh tinge among the white, and often has blue veins in different parts of it. It is ſuppoſed by ſome to have had its name from the iſland Paros †, one of the Cyclades in the Ægean ſea, where it was firſt found; but others will have it to have been ſo called from Agoracritus Parius, a famous ſtatuary, who ennobled it by cutting a ſtatue of Venus in it.

† See *Paros.*

PARIAS, or PERREAS, a tribe of Hindoos, ſo peculiarly diſtinguiſhed from all others, that they live by themſelves in the outſkirts of towns; and, in the country, build their houſes apart from the villages, or rather have villages of their own, furniſhed with wells; for they dare not ſo much as fetch water from thoſe which other families make uſe of; and, leſt theſe latter ſhould inadvertently go to one of theirs, they are obliged to ſcatter the bones of dead cattle about their wells, that they may be known. They dare not in cities paſs through

Mod. Univ. Hiſt. v. 5.

Parias. through the ſtreets where the Bramins live; nor ſet foot in the villages where they dwell.—They are likewiſe forbidden to enter a temple, either of their god Wiſtnow or Eſwara; becauſe they are held impure. They get their bread by ſowing, digging, and building the walls of mud houſes; moſt of thoſe inhabited by the common people being raiſed by theſe Parias; who alſo do ſuch kinds of dirty work as other people do not care to meddle with. Nor is their diet much more cleanly; for they do not ſcruple to eat cows, horſes, fowl, or other carrion, which die of themſelves, and are even putrid. One would ſcarce imagine, that contentions for precedency ſhould ever enter into the thoughts of a people who have renounced all cleanlineſs, and, like ſwine, wallow in filth; and yet pride has divided the Parias into two claſſes: the firſt are ſimply called *Parias*, the other *Seriperes*. The employment of theſe latter is to go about ſelling leather, which they dreſs: alſo to make bridles, and ſuch kind of things; ſome of them likewiſe ſerve for ſoldiers. The Parias, who reckon themſelves the better family, will not eat in the houſe of the Seriperes; but the Seriperes will readily eat with the Parias. For this reaſon they are obliged to pay them reſpect, by lifting their hands aloft, and ſtanding upright before them. Theſe Seriperes, when they marry, cannot ſet up a pandel, a kind of garland, before their doors, made with more than three ſtakes or trees; ſhould they exceed that number, the whole city would be in motion. The Seriperes are likewiſe ſubject to ſome ſort of ſlavery; for when any perſon of credit or authority dies in the families of the Komitis, Sittis, Palis, farriers, or goldſmiths, and the friends have a mind to be at the expence of ſome clothes to give the Seriperes, theſe latter muſt ſuffer their beards to be ſhaven; and when the corpſe is carried out of town to be burned or interred, they muſt do that office; for which each receives a *fanum*, or one piece and a half of ſilver, worth three ſous and a half. Theſe are the ſame ſort of people who are called at Surat *Halalchors;* that is, in the Perſian language, "eat-ails, or eaters at large." Nothing can offend an Hindoo more than to be called a Halalchor: yet theſe poor people are not offended, cringe and bow to all they paſs, and go through their drudgery without noiſe or concern.

The Parias are very vicious, ſtupid, and ignorant, occaſioned by their wretched way of life: The Bramins and nobility ſhun them as if they had the plague, and look on the meeting a Parias as the greateſt misfortune. To come near one of them is a ſin, to touch them a ſacrilege. If a Parias were dying, it is infamy to viſit him, or to give him the leaſt aſſiſtance, in the utmoſt danger or diſtreſs. A Bramin who unavoidably ſhould touch a Parias, immediately waſhes himſelf from the impurity. Even their ſhadow and breath being reckoned contagious, they are obliged to live on the eaſt ſide of their towns, that the weſterly winds which prevail in this country may keep back their breath. And it is lawful for a Bramin to kill one of theſe unhappy creatures, if he does not avoid it by getting out of his way: In ſhort, they think them reprobated by God, and believe the ſouls of the damned enter into the Parias, to be puniſhed for their crimes.—Yet the miſſion have found among theſe dregs of the people very active zealous catechiſts, who by their labours have very much contributed to the converſion of their countrymen, particularly one Rajanaiken a Paria ſoldier, who, of all the inferior miſſionaries, has diſtinguiſhed himſelf moſt by his labours and ſufferings. Parietalia II Paris.

PARIETALIA OSSA. See ANATOMY *Index*.

PARIETARIA, *PELLITORY of the WALL*: A genus of plants belonging to the polygamia claſs; and in the natural method ranking under the 53d order, *Scabridæ*. See BOTANY *Index*.

PARIETES, in *Anatomy*, a term uſed for the encloſures or membranes that ſtop up or cloſe the hollow parts of the body; eſpecially thoſe of the heart, the thorax, &c. The parietes of the two ventricles of the heart are of unequal ſtrength and thickneſs; the left exceeding the right, becauſe of its office, which is to force the blood through all parts of the body; whereas the right only drives it through the lungs.

PARIS, MATTHEW, one of our beſt hiſtorians from William the Conqueror to the latter end of the reign of Henry III. but of his life few particulars have been tranſmitted to us. Leland his original biographer, without determining whether he was born in France or England, informs us, that he was a monk of St Alban's, and that he was ſent by Pope Innocent to reform the monks of the convent at Holm in Norway. Biſhop Bale, the next in point of time, adds to the above relation, that, on account of his extraordinary gifts of body and mind, he was much eſteemed, particularly by King Henry III. who commanded him to write the hiſtory of his reign. Fuller makes him a native of Cambridgeſhire, becauſe there was an ancient family of his name in that county. He alſo mentions his being ſent by the pope to viſit the monks in the dioceſe of Norwich. Biſhop Tanner, Biſhop Nicholſon, Doctor Du Pin, and the *Nouveau Dictionnaire Hiſtorique*, add not a ſingle fact to thoſe above related. Matthew Paris died in the monaſtery of St Alban's in the year 1259. He was doubtleſs a man of extraordinary knowledge for the 13th century; of an excellent moral character, and, as an hiſtorian, of ſtrict integrity. His ſtyle is unpoliſhed; but that defect is ſufficiently atoned for by the honeſt freedom with which he relates the truth, regardleſs of the dignity or ſanctity of the perſons concerned. His works are, 1. *Hiſtoria ab Adamo ad Conqueſtum Angliæ*, Lib. I. manuſcript, col. C. C. Cantab. c. ix. Moſt of this book is tranſcribed, by Matthew of Weſtminſter, into the firſt part of his *Florilegium*. 2. *Hiſtoria major, ſeu rerum Anglicanarum hiſtoria à Gul. Conqueſtoris adventu ad annum* 43 *Henrici* III. &c. ſeveral times printed. The firſt part of this hiſtory, viz. to the year 1235, is tranſcribed almoſt verbatim from the Chronicle of Roger Wendover; and the Appendix, from the year 1260, in the work of William Raſhinger, who was alſo a monk of St Alban's. 3. *Vitæ duorum Offarum, Merciæ regum, S. Albani fundatorum.* 4. *Geſta* 22 *abbatum S. Albani.* 5. *Additamenta chronicorum ad hiſt. majorem;* printed. 6. *Hiſtoria minor, ſive epitome majoris hiſtoriæ;* manuſcript. Beſides many other things in manuſcript.

PARIS, ſon of Priam, king of Troy, by Hecuba, alſo named *Alexander*. He was decreed, even before his birth, to become the ruin of his country; and when his mother, in the firſt months of her pregnancy, had dreamed that ſhe ſhould bring forth a torch which would ſet fire to her palace, the ſoothſayers foretold the calamities which were to be expected from the imprudence of her future

Paris. future ſon, and which would end in the ruin of Troy. Priam, to prevent ſo great and ſo alarming an evil, ordered his ſlave Archelaus to deſtroy the child as ſoon as he was born. The ſlave, either touched with humanity, or influenced by Hecuba, did not obey, but was ſatisfied to expoſe the child on Mount Ida, where the ſhepherds of the place found him, and educated him as their own. Some attribute the preſervation of his life, before he was found by the ſhepherds, to the motherly tenderneſs of a ſhe bear who ſuckled him. Young Paris, though educated among ſhepherds and peaſants, gave very early proofs of courage and intrepidity; and from his care in protecting the flocks of Mount Ida from the rapacity of the wild beaſts, he was named *Alexander*, "helper or defender." He gained the eſteem of all the ſhepherds, and his graceful countenance and manly deportment recommended him to the favours of Oenone, a nymph of Ida, whom he married, and with whom he lived with the moſt perfect tenderneſs. Their conjugal peace was, however, of no long duration. At the marriage of Peleus and Thetis, the goddeſs of diſcord, who had not been invited to partake of the entertainment, ſhowed her diſpleaſure, by throwing into the aſſembly of the gods who were at the celebration of the nuptials, a golden apple, on which were written the words *Detur pulchriori*. All the goddeſſes claimed it as their own; the contention at firſt became general; but at laſt only three, Juno, Venus, and Minerva, wiſhed to diſpute their reſpective right to beauty. The gods, unwilling to become arbiters in an affair ſo tender and ſo delicate in its nature, appointed Paris to adjudge the prize of beauty to the faireſt of the goddeſſes; and indeed the ſhepherd ſeemed ſufficiently qualified to decide ſo great a conteſt, as his wiſdom was ſo well eſtabliſhed, and his prudence and ſagacity ſo well known. The goddeſſes appeared before their judge without any covering or ornament, and each endeavoured by promiſes and entreaties to gain the attention of Paris, and to influence his judgement. Juno promiſed him a kingdom; Minerva military glory; and Venus the faireſt woman in the world for his wife, as Ovid expreſſes it, *Heſiod* 17. v. 118.

Unaque cum regnum; belli daret altera laudem;
Tyndaridis conjux, tertia dixit, eris.

After he had heard their ſeveral claims and promiſes, Paris adjudged the prize to Venus, and gave her the golden apple, to which perhaps ſhe ſeemed entitled as the goddeſs of beauty. This deciſion of Paris drew upon the judge and his family the reſentment of the two other goddeſſes. Soon after, Priam propoſed a conteſt among his ſons and other princes, and promiſed to reward the conqueror with one of the fineſt bulls of Mount Ida. His emiſſaries were ſent to procure the animal, and it was found in the poſſeſſion of Paris, who reluctantly yielded it. The ſhepherd was anxious to regain his favourite, and he went to Troy and entered the liſts of the combatants. He was received with the greateſt applauſe, and obtained the victory over his rivals, Neſtor the ſon of Neleus, Cyenus ſon of Neptune, Polites, Helenus, and Deiphobus, ſons of Priam. He likewiſe obtained a ſuperiority over Hector himſelf; which prince, enraged to ſee himſelf conquered by an unknown ſtranger, purſued him cloſely; and Paris muſt have fallen a victim to his brother's rage, had he not fled to the altar of Jupiter. This ſacred retreat preſerved his life; and Caſſandra the daughter of Priam, ſtruck with the ſimilarity of the features of Paris with thoſe of her brothers, enquired his birth and age. From theſe circumſtances ſhe ſoon diſcovered that he was her brother, and as ſuch ſhe introduced him to her father and to her brothers. Priam acknowledged Paris as his ſon, forgetful of the alarming dreams which had cauſed him to meditate his death, and all jealouſy ceaſed among the brothers. Paris did not long ſuffer himſelf to remain inactive; he equipped a fleet, as if willing to redeem Heſione his father's ſiſter, whom Hercules had carried away and obliged to marry Telamon the ſon of Æacus. This was the pretended motive of his voyage, but the cauſes were far different. Paris remembered that he was to be the huſband of the faireſt of women; and, if he had been led to form thoſe expectations while he was an obſcure ſhepherd of Ida, he had now every plauſible reaſon to ſee them realized, ſince he was the acknowledged ſon of the king of Troy. Helen was the faireſt woman of the age, and Venus had promiſed her to him. On theſe grounds, therefore, he went to Sparta, the reſidence of Helen, who had married Menelaus. He was received with great reſpect; but he abuſed the hoſpitality of Menelaus, and while the huſband was abſent in Crete, Paris perſuaded Helen to elope with him, and to fly to Aſia. Helen conſented; and Priam received her into his palace without difficulty, as his ſiſter was then detained in a foreign country, and as he wiſhed to ſhow himſelf as hoſtile as poſſible to the Greeks. This affair was ſoon productive of ſerious conſequences. When Menelaus had married Helen, all her ſuitors had bound themſelves by a ſolemn oath to protect her perſon, and therefore the injured huſband reminded them of their engagements, and called upon them to recover her. Upon this all Greece took up arms in the cauſe of Menelaus; Agamemnon was choſen general of all the combined forces, and a regular war was begun. Paris, meanwhile, who had refuſed Helen to the petitions and embaſſies of the Greeks, armed himſelf, with his brothers and ſubjects, to oppoſe the enemy; but the ſucceſs of the war was neither hindered nor accelerated by his means. He fought with little courage, and at the very ſight of Menelaus, whom he had ſo recently injured, all his reſolution vaniſhed, and he retired from the front of the army, where he walked before like a conqueror. In a combat with Menelaus, which he undertook by means of his brother Hector, Paris muſt have periſhed, had not Venus interfered, and ſtolen him from the reſentment of his antagoniſt. He wounded, however, in another battle, Machaon, Euryphilus, and Diomedes; and, according to ſome opinions, he killed with one of his arrows the great Achilles. Paris.

The death of Paris is differently related: ſome ſay that he was mortally wounded by one of the arrows of Philoctetes, which had been once in the poſſeſſion of Hercules; and that when he found himſelf languid on account of his wounds, he ordered himſelf to be carried to the feet of Oenone, whom he had baſely abandoned, and who in the years of his obſcurity had foretold him that he would ſolicit her aſſiſtance in his dying moments. He expired before he came into the preſence of Oenone; and the nymph, ſtill mindful of their former loves, threw herſelf upon his body, and ſtabbed herſelf to the heart, after ſhe had plentifully bathed it with her tears. According to others, Paris did not immediately go to

Paris. Troy when he left the Peloponneſus, but he was driven on the coaſts of Egypt, where Proteus, who was king of the country, detained him; and when he heard of the violence which had been offered to the king of Sparta, he kept Helen at his court, and permitted Paris to retire. Whatever was the mode of his death, it took place, we are told about 1188 B. C. See TROY, &c.

PARIS, the capital of the kingdom of France; is ſituated on the river Seine, in the Iſle of France, being one of the largeſt and fineſt cities in Europe. It derived its modern name from the ancient Pariſii; and is ſuppoſed by ſome to have had the Latin name of *Lutetia*, from *Lutum*, "mud," the place where it now ſtands having been anciently very marſhy and muddy. Ever ſince the reign of Hugh Capet, that is, for near 800 years, this city has been the uſual reſidence of the kings of France; it is of a circular form, and, including the ſuburbs, about five French leagues, or 15 Engliſh miles, in circumference. The number of its inhabitants is computed at about 800,000; that of its ſtreets 912; and that of its houſes upwards of 20,000, excluſive of the public ſtructures of all ſorts. Its greateſt defect, according to ſome, is the want of good drinking water; but others tell us, that very fine water is brought by an aqueduct from the village of Arcueil, not far from Paris, but own that the water of the Seine, and the city, is not good. The ſtreets are of a proper breadth, well built, paved, and lighted. There is a great number of tribunals, and offices here; moſt of which are kept in the Palais, ſituated on an iſland, to which it gives name. The number of churches, convents, hoſpitals, market places, fountains, gates, and bridges, in this city is very great; beſides the univerſity, ſeveral academies, public libraries, royal palaces and caſtles, and above 100 hotels, ſome of them very ſtately. But to be more particular, that part called *la Cité*, lies in the centre, and conſiſts of three iſlands formed by the Seine, viz. L'Iſle de Palais, L'Iſle de Notre Dame, and L'Iſle Louviers. It is the principal of the three parts into which the city is divided, and contains the following remarkable ſtructures: 1. Several bridges; of which ſome are of wood and others of ſtone, and have moſt of them a row of houſes on each ſide. The chief of theſe are the Pont-neuf and Pont-royal: the firſt conſiſts of 12 arches, which, properly ſpeaking, make two bridges, the one leading from the ſuburb of St Germain to the city, and the other from thence to that part called *la Ville*: there is a carriage way in the middle 30 feet broad, and footwalks on each ſide, raiſed two feet high; and in the centre ſtands a braſs ſtatue of King Henry IV. on horſeback. On this bridge is alſo the building called *La Samaritaine*, from a group of figures upon it repreſenting our Saviour and the Samaritan woman, ſtanding near Jacob's well. Here is a pump to raiſe the water, which through ſeveral pipes ſupplies the quarter of the Louvre, and ſome other parts of the town. The Pont-royal, which leads to the Thuilleries, was built by order of Lewis XIV. in the room of a wooden bridge that was carried away by the current in 1684. 2. The cathedral of Notre Dame, or our Lady, being dedicated to the Holy Virgin, which is a large ſtately Gothic ſtructure, ſaid to have been founded by King Childeric, and built in the form of a croſs. Here, beſides other great perſonages, are interred the cardinals de Retz and Noailles. From the two ſquare towers belonging to it, is a noble proſpect of the city and neighbouring country. Here is a vaſt quantity of gold and ſilver plate, rich tapeſtry, and fine paintings; and the number of the canons is no leſs than 50. Near it ſtands the palace of the archbiſhop, in which is the advocates library: the revenue of the archbiſhop amounts to about 180,000 livres; and his taxation to the court of Rome is 4283 guilders. 3. The priory and pariſh church of St Bartholomew; the laſt of which is the moſt beautiful in all this part of the city, and ſtands near the Palais. 4. The Palais, which gives name to an iſland, and in which the parliament, with a great many other courts, are held. It was anciently the reſidence of the kings; but was given to the officers of juſtice by Philip the Fair, who alſo ſettled the parliament here in 1302. The parliament, conſiſting of ſeveral chambers, each of which has its department, is opened the day after Martinmas with a ſolemn maſs, celebrated by a biſhop, and continues ſitting till the 8th of September, when a vacation chamber is appointed during the interval, for criminal cauſes, and others which require deſpatch. The juriſdiction of this court is of great extent. There is a beautiful chapel belonging to the Palais: in which is alſo the priſon, or jail, for the juriſdiction of the parliament, called in French *La Conciergerie*. 5. The Hotel Dieu, the moſt ancient and largeſt hoſpital in Paris, in which 8000 ſick and infirm poor are taken care of, and attended by the nuns of the order of St Auguſtine. 6. The hoſpital of St Catharine, where poor women and maidens are entertained three days, and attended by the above-mentioned nuns. 7. The Grande Chatelet, where ſome of the inferior courts of juſtice hold their ſeſſions. 8. Fort l'Eveque, in which is the mint and a priſon. It ſtands in or near the ſtreet La Ferroniere, in which Henry IV. was ſtabbed by Ravilliac. 9. St Germain l'Auxerrois, which is called the *royal palace church;* becauſe the palaces of the Louvre and Thuilleries ſtand in its pariſh. 10. The Louvre, an ancient royal palace, of which a part was rebuilt by Lewis XIV. Had it been completed on the ſame plan, it would have been a moſt magnificent ſtructure. On one of its gates is the following inſcription, *Dum totum impleat orbem:* the meaning of which is, "May it laſt till the owner of it hath extended his ſway over the whole world:" which implies what the French kings have conſtantly aimed at. Another inſcription ſhows, at the ſame time, the vanity of the nation, and their abject flattery of their grand monarque. It may be rendered in Engliſh thus:

Louvre is a palace for great Louis fit:
God him alone exceeds, as heaven does it.

This palace is joined to the Thuilleries by a gallery, in which are 180 models of fortreſſes, ſome ſituated in France, and ſome in other countries, executed with the utmoſt accuracy. Here is a valuable collection of paintings, the king's printing houſe, the mint where the king's medals are ſtruck, together with a prodigious quantity of rich tapeſtry hangings, and a collection of ancient arms, among which are thoſe worn by Francis I. at the famous battle of Pavia. Here alſo the French academy, the academy of inſcriptions and belles lettres, the royal academy of ſciences, the academy of painting and ſculpture, and the royal academy of architecture, have their meetings. The firſt

Paris.

of

Paris. of theſe was founded for the improvement of the French language; and as for the others, their names explain the deſign of their inſtitution. 11. Le Palais Royal, which was built by Cardinal Richelieu, in the year 1636, and belongs to the duke of Orleans. It is ſaid to contain pictures to the value of four millions of livres, which were purchaſed by the regent of that title, and of which a part belonged to Chriſtina queen of Sweden. 12. The palace of the Thuilleries, ſo called from a tile or brick kiln which ſtood there formerly. This palace, as we obſerved above, communicates with the Louvre by a gallery. Behind it are exceeding pleaſant gardens, adorned with fine walks, planted with evergreens and other trees, and with beautiful parterres, where are to be ſeen, all the year round, every flower according to its ſeaſon. There are alſo three fine fountains in the garden, and a canal. Behind the Thuilleries, on the bank of the river, are pleaſant walks, compoſed of four rows of lofty elms, to which vaſt crowds of people reſort in the fine weather, as well as to the gardens. In the palace is a ſpacious and magnificent theatre; and hard by it are the Elyſian fields, where a ſurpriſing number of coaches are to be ſeen in fair weather; not far off is the church of St Roche, where the celebrated poet Corneille is interred. 13. La place de Louis le Grand, a very beautiful ſquare, in the centre of which is an equeſtrian ſtatue of that king, which is juſtly accounted a maſterpiece. 14. The Place or Square des Victoires, which is round, and contains a ſtatue of Louis XIV. of gilt braſs, erected to him by the duke de la Feuillade, with this inſcription, *Viro immortali*. 15. The Royal Library in the Rue Vivien, which contains 94,000 printed books, 30,000 manuſcripts, and a prodigious collection of copperplates and medals. Near this, in the churchyard of St Joſeph, lies the famous comic poet Moliere. 16. The pariſh church of St Euſtace, which ſtands in the quarter of the ſame name, and contains the tomb of the great miniſter Colbert. 17. The gate of St Dennis, which was erected as a triumphal arch in honour of Louis XIV. 18. The gate of St Martin, erected alſo in form of a triumphal arch, in honour of the ſame king. Not far from hence, in the churchyard of St Nicholas des Champs, Peter Gaſſendi, and other learned men, are buried. 19. La Greve, an open place, where all public rejoicings are celebrated, and malefactors executed. 20. The Hotel de Ville, which is a large building of Gothic architecture, though adorned with columns of the Corinthian order. 21. The arſenal in the quarter of St Paul, conſiſting of many ſpacious buildings, among which are a foundery, and a houſe for making ſaltpetre. Here is a muſquetoon of two barrels, which it is ſaid will pierce a thick board at the diſtance of ſix miles; and for diſcerning an object at that diſtance, has a teleſcope fixed to the barrel. 22. The Baſtile, now demoliſhed, was a kind of fortreſs like the Tower of London, and uſed as a priſon for ſtate criminals, and for ſuch as were taken up by lettres de cachet, i. e. by warrants ſigned by the king, and ſealed. 23. Le Temple, a commandery of the knights of Malta, which gives name to a quarter, wherein, being a privileged place, artificers that are not freemen may carry on their buſineſs without moleſtation. The temple is the reſidence of the grand prior of the French nation. 24. That formerly called *La Maiſon profeſſe des Jeſuites*, in the quarter of St Anthony, in the church of which the hearts of Louis XIII. and XIV. are preſerved, Paris. each in a caſket of gold, ſupported by two angels of maſſy ſilver, and as big as the life, hovering with expanded wings. In the ſame quarter is a fine looking glaſs manufacture, where above 500 perſons are employed in poliſhing plates caſt at St Gobin; with a convent of Franciſcans, the monks of which are called *Pique puces*, for *Prick fleas*.

In that part of the city called the *Univerſity*, the principal places are,

1. The univerſity, which gives name to it, and which was firſt founded, as it is ſaid, by Charles the Great: all the arts and ſciences are taught here, particularly law, phyſic, and divinity. There are above 40 colleges; of which the chief are thoſe of Sorbonne, of Navarre, of the faculty of phyſic, and of the four nations; but lectures are read only in eleven of them. The head of the univerſity is the rector, who is choſen every three months, but ſometimes is continued ſeveral years. All the profeſſors have ſettled ſalaries; the whole annual income of the univerſity amounting, it is ſaid, to about 50,000 livres. 2. The Gobelins a houſe or palace, where a great number of ingenious artiſts, in various manufactures and handicrafts, are employed by the government. The moſt curious tapeſtry of all ſorts is made here. 3. The General Hoſpital, a moſt noble foundation for the poor of the female ſex, near 7000 objects being taken care of and provided for. The ſick are carefully tended; and thoſe that are in health are obliged to work; different wards being allotted for foundlings, for girls who ſew or knit, proſtitutes, idiots, and poor women: of the laſt, ſome are kept gratis, and others pay a ſmall matter. In the caſtle of Bicêtre, belonging to this hoſpital, and conſiſting of many large buildings, are near 4000 perſons of the other ſex, among which are perſons diſordered in their ſenſes, and ſuch as are afflicted with the venereal diſeaſe. To this hoſpital are alſo ſent children who abuſe their parents, and lead diſſolute lives. The fund for the maintenance of it, and the hoſpital de la Pitie, where poor children are brought up, together with the Hotel Dieu, amounts to about two millions of livres *per annum*. 4. The King's Phyſic Garden, in which are an infinite variety of plants and trees, a certain ſum being allotted by the king for keeping the garden in order, and improving it, and for lectures on botany, anatomy, chemiſtry, and the materia medica. A curious collection of natural curioſities is kept here. 5. The abbey of St Victor, in which is a public library, containing ſome very ancient and ſcarce books, ſeveral curious manuſcripts, and a prodigious collection of maps and copperplates. 6. The College of Phyſicians, to which belong five profeſſors. 7. The Little Chatelet, an old fortreſs, now uſed for a priſon. 8. The Rue St Jacques, chiefly inhabited by bookſellers. 9. The Royal College, and that of Louis the Great: to the former belong twelve profeſſors. 10. The Abbey of St Genevieve, in which is the marble monument of King Clovis, the ſhrine of St Genevieve, a large library, with a cabinet of antiquities and natural curioſities. 11. The Royal Obſervatory, a moſt ſtately edifice, built on the higheſt part of the city. Several aſtronomers are maintained here by the king. 12. The Royal Academy of Surgery, inſtituted in 1721. 13. The Convent of Franciſcans.

Paris, Pariſh.

ciſcans, in the quarter of St Andrew, the richeſt in France. In the ſame quarter are ſome remains of the palace of Julian the Apoſtate, in which Childebert, and ſome other kings of the Franks, afterwards reſided. 14. The Playhouſe. 15. The Convent of Carthuſians, in the quarter of Luxemburgh, containing fine paintings. 16. The palace of Luxemburgh or Orleans, a magnificent ſtructure, containing alſo ſome fine paintings by Rubens, and embelliſhed with a noble garden. In the Hotel des Ambaſſadeurs, ambaſſadors extraordinary are entertained for three days, and thoſe of remote countries all the time they ſtay at Paris. 17. The Abbey of St Germain des Prez, which contains a very valuable library, the manuſcripts alone making 8000 volumes: here alſo is a cabinet of antiquities. 18. The Hotel Royal des Invalides, erected by Louis XIV. in which lame and ſuperannuated officers and ſoldiers are maintained. The buildings take up no leſs than 17 acres. The number of common ſoldiers here amount to about 3000, and of officers to about 500. The chapel is very magnificent. Hard by is a military academy, in which 500 young gentlemen are inſtructed in the art of war.

Our readers from the above account will be able to conceive what Paris was. For an account of the changes which have taken place in that city during the progreſs of the revolution, ſee FRANCE; and for a more particular detail of thoſe events we muſt refer to the numerous works which have appeared ſince the peace of Amiens, in the form of *tours* and *deſcriptions*, ſome of which are in the hands of every reader.

PARIS, *Herb Paris*, or *Truelove*, a genus of plants belonging to the octandria claſs, and in the natural method ranking under the 11th order, *Sarmentaceæ*. See BOTANY *Index*.

Herb PARIS *of Canada*, a genus of plants belonging to the hexandria claſs. See TRILLIUM, BOTANY *Index*.

Plaſter of PARIS, or *Stucco*, or *Parget of Montmartre*, the firſt and the laſt name being derived from the place where it is found in great abundance, is a ſubſtance compoſed of lime and ſulphuric acid, which on account of its property of rapidly abſorbing water, after being calcined, is much employed in making caſts and models. See GYPSUM, MINERALOGY and GEOLOGY *Index*.

PARISH, the precinct of a parochial church, or a circuit of ground inhabited by people who belong to one church, and are under the particular charge of its miniſter.

The word comes from the Latin *parochia*, the Greek παροικια *habitation;* compounded of παρα *near*, and οικος *houſe*.—Accordingly Du Cange obſerves, that the name παροικια was anciently given to the whole territory of a biſhop, and derives it from *neighbourhood;* becauſe the primitive Chriſtians, not daring to aſſemble openly in cities, were forced to meet ſecretly in neighbouring houſes.

In the ancient church there was one large edifice in each city for the people to meet in; and this they called *parochia*, "Pariſh." But the ſignification of the word was afterwards enlarged, and by a pariſh was meant a dioceſe, or the extent of the juriſdiction of a biſhop, conſiſting of ſeveral churches, unleſs we will ſuppoſe, as ſome do, that thoſe biſhops were only paſtors of ſingle churches. Du Pin obſerves, that country pariſhes had not their origin before the 4th century; but thoſe of cities are more ancient. The city of Alexandria is ſaid to have been the firſt that was divided into pariſhes. Pariſh.

Of the firſt diviſion of pariſhes there is no certain information; for in the early ages of Chriſtianity in this iſland, pariſhes were unknown, or at leaſt ſignified the ſame that a dioceſe now does. There was then no appropriation of eccleſiaſtical dues to any particular church; but every man was at liberty to contribute his tithes to any prieſt or church he pleaſed, but he was obliged to do it to ſome; or if he made no ſpecial appropriation thereof, they were paid to the biſhop, whoſe duty it was to diſtribute them among the clergy, and for other pious purpoſes, according to his own diſcretion. Camden ſays England was divided into pariſhes by Archbiſhop Honorius about the year 630. Sir Henry Hobart maintains that pariſhes were firſt erected by the council of Lateran, held A. D. 1179. But Mr Selden proves, that the clergy lived in common without any diviſion of pariſhes, long after the time mentioned by Camden; and it appears from the Saxon laws, that pariſhes were in being long before the council of Lateran in 1179. The diſtinction of pariſhes occurs in the laws of King Edgar, about the year 970. It ſeems pretty clear and certain, ſays Judge Blackſtone (Com. vol. i. p. 112.) that the boundaries of pariſhes were firſt aſcertained by thoſe of a manor or manors; becauſe it very ſeldom happens that a manor extends itſelf over more than one pariſh, though there are often many manors in one pariſh. The lords, he adds, as Chriſtianity ſpread, began to build churches upon their own demeſnes or waſtes, in order to accommodate their tenants in one or two adjoining lordſhips; and that they might have divine ſervice regularly performed therein, obliged all their tenants to appropriate their tithes to the maintenance of the one officiating miniſter, inſtead of leaving them at liberty to diſtribute them among the clergy of the dioceſe in general; and this tract of land, the tithes of which were ſo appropriated, formed a diſtinct pariſh; and this accounts for the frequent intermixture of pariſhes one with another. For if a lord had a parcel of land detached from the main of his eſtate, but not ſufficient to form a pariſh of itſelf, it was natural for him to endow his newly erected church with the tithes of ſuch lands. Extra-parochial waſtes and marſh lands, when improved and drained, are by 17 Geo. II. cap. 37. to be aſſeſſed to all parochial rates in the pariſh next adjoining. Camden reckons 9284 pariſhes in England; and Chamberlayne makes 9913. They are now generally reckoned about 10,000.

PARISH Clerk. In every pariſh the parſon, vicar, &c. hath a pariſh clerk under him, who is the loweſt officer of the church. Theſe were formerly clerks in orders, and their buſineſs at firſt was to officiate at the altar; for which they had a competent maintenance by offerings; but they are now laymen, and have certain fees with the parſon on chriſtenings, marriages, burials, &c. beſides wages for their maintenance. The law looks upon them as officers for life: and they are choſen by the miniſter of the pariſh, unleſs there is a cuſtom for the pariſhioners or churchwardens to chooſe them; in which caſe the canon cannot abrogate ſuch cuſtom; and when choſen it is to be ſignified, and they

Parifii || Park.

they are to be ſworn into their office by the archdeacon, for which the court of king's bench will grant a mandamus.

PARISII, in *Ancient Geography*, a people of Gallia Celtica, inhabiting the country about the Sequana and Matrona. Now a great part of the Iſle of France.—*Pariſii* (Ptolemy), a people of Britain, having the Brigantes to the north and weſt, the German ſea to the weſt, and the Coritani to the ſouth, from whom they were ſeparated by the Humber. Now *Holderneſſe*, a peninſula of the eaſt riding of Yorkſhire.

PARISIORUM CIVITAS. See LUTETIA.

PARIUM, in *Ancient Geography*, a noble city of Myſia Minor, with a port on the Propontis; called *Adraſtia* by Homer, according to Pliny; but Strabo diſtinguiſhes them: according to others, the *Paeſtos* of Homer. *Pariani*, the people (Strabo). The birthplace of Neoptolemus ſurnamed *Gloſſographus* (Strabo). Here ſtood a Cupid equal in exquiſite workmanſhip to the Cnidian Venus.

PARK (French *parque*, i. e. *locus incluſus*), is a large quantity of ground encloſed and privileged for wild beaſts of chaſe, by the king's grant or preſcription. See CHASE and FOREST.

Manwood defines a chaſe to be "a privileged place, for beaſts of venery, and other wild beaſts of the foreſt and chaſe, *tam ſylveſtres, quam campeſtres;*" and differs from a chaſe or warren, in that it muſt be encloſed: for if it lies open, it is good cauſe of ſeizure into the king's hands, as a thing forfeited; as a free chaſe is, if it be encloſed: beſides, the owner cannot have an action againſt ſuch as hunt in his park, if it lies open. No man can erect a park without licenſe under the broad ſeal; for the common law does not encourage matter of pleaſure, which brings no profit to the commonwealth. But there may be a park in reputation erected without any lawful warrant; and the owner may bring his action againſt perſons killing his deer.

To a park three things are required. 1. A grant thereof. 2. Encloſures by pale, wall, or hedge. 3. Beaſts of a park; ſuch as the buck, doe, &c. And where all the deer are deſtroyed, it ſhall no more be accounted a park; for a part conſiſts of vert, veniſon, and encloſure: and if it is determined in any of them, it is a total diſparking.

Parks as well as chaſes are ſubject to the common law, and are not to be governed by the foreſt laws.

PARK, as connected with gardening. See GARDENING.

A park and a garden are more nearly allied than a farm and a garden *, and can therefore be accommodated to each other without any diſparagement to either. A farm loſes ſome of its characteriſtic properties by the connexion, and the advantage is on the part of the garden: but a park thus bordered retains all its own excellencies; they are only enriched, not counteracted, by the intermixture. The moſt perfect compoſition of a place that can be imagined, conſiſts of a garden opening into a park, with a ſhort walk through the latter to a farm, and ways along its glades to ridings in the country; but to the farm and the ridings the park is no more than a paſſage; and its woods and its buildings are but circumſtances in their views; its ſcenes can be communicated only to the garden. Park.

* See *Farm* and *Gardening*.

The affinity of the two objects is ſo cloſe, that it would be difficult to draw the exact line of ſeparation between them. Gardens have lately encroached very much both in extent and in ſtyle on the character of a park; but ſtill there are ſcenes in the one which are out of the reach of the other. The ſmall ſequeſtrated ſpots which are agreeable in a garden would be trivial in a park; and the ſpacious lawns which are among the nobleſt features of the latter, would in the former fatigue by their want of variety; even ſuch as, being of a moderate extent, may be admitted into either, will ſeem bare and naked, if not broken in the one; and loſe much of their greatneſs, if broken in the other. The proportion of a part to the whole is a meaſure of its dimenſions: it often determines the proper ſize for an object, as well as the ſpace fit to be allotted to a ſcene; and regulates the ſtyle which ought to be aſſigned to either.

But whatever diſtinctions the extent may occaſion between a park and a garden, a ſtate of highly cultivated nature is conſiſtent with each of their characters; and may in both be of the ſame kind, though in different degrees.

The excellencies both of a park and of a garden are happily blended at Hagley (A), where the ſcenes are equally elegant and noble. It is ſituated in the midſt of a fertile and lovely country, between the Clent and the Witchberry hills; neither of which are within the pale, but both belong to the place. The latter riſe in three beautiful ſwells. One of them is covered with wood; another is an open ſheep walk, with an obeliſk on the ſummit; on the third, the portico of the temple of Theſeus, exactly on the model of that of Athens, and little leſs in the dimenſions, ſtands boldly out upon the brow, backed by the dark ground of a fir plantation, and has a moſt majeſtic appearance above the ſteeps which fall before and beſide it. The houſe is ſeen to the greateſt advantage from theſe eminences, and every point of them commands ſome beautiful proſpect. The buſy town of Stourbridge is juſt below them; the ruins of Dudley caſtle riſe in the offſkip; the country is full of induſtry and inhabitants; and a ſmall portion of the moor, where the minerals, manufactured in the neighbourhood, are dug, breaking in upon the horizon, accounts for the richneſs, without derogating from the beauty, of the landſcape. From the Clent hills the views are ſtill greater: they extend on one ſide to the black mountains in Wales, a long ridge which appears, at 60 miles diſtance, in the interval between the unwieldy heap of the Malvern hills and the ſolitary peak of the Wrekin, each 30 miles off, and as many aſunder. The ſmoke of Worceſter, the churches in Birmingham, and the houſes in Stourbridge, are diſtinctly viſible. The country is a mixture of hill and dale, and ſtrongly encloſed; except in one part, where a heath, varied by riſing grounds, pieces of water, and ſeveral objects, forms an agreeable contraſt to the cultivation

(A) Near Stourbridge, in Worceſterſhire, the ſeat of Lord Lyttleton.

Park. vation which ſurrounds it. From the other extremity of the Clent hills, the proſpect is leſs extenſive; but the ground is more rude and broken; it is often overſpread with large and beautiful woods; and the view is dignified with numerous ſeats. The hills alſo being very irregular, large advanced promontories frequently interrupt the ſight, and vary the ſcene: in other parts, deep valleys ſhelving down towards the country below, exhibit the objects there in different lights. In one of theſe hollows is built a neat cottage, under a deep deſcent, ſheltered beſides by plantations, and preſenting ideas of retirement in the midſt of ſo much open expoſure: from the heights above it, is ſeen all that view which before was commanded from the Witchberry hills, but which is ſeen here over Hagley park; a noble fore ground, beautiful in itſelf, and completing the landſcape.

The houſe, though low in the park, is yet above the adjacent country, which it overlooks to a very diſtant horizon. It is ſurrounded by a lawn of fine uneven ground, and diverſified with large clumps, little groups, and ſingle trees. It is open in front, but covered on one ſide by the Witchberry hills; on the other ſide, and behind, by the eminences in the park, which are high and ſteep, and all overſpread with a lofty hanging wood. The lawn preſſing to the foot, or creeping up the ſlopes of theſe hills, and ſometimes winding along glades into the depth of the wood, traces a beautiful outline to a ſylvan ſcene, already rich to luxuriance in maſſineſs of foliage and ſtatelineſs of growth.

But though the wood appears to be entire, it in reality opens frequently into lawns, which occupy much of the ſpace within it. In the number, the variety, and the beauty of theſe lawns, in the ſhades of the ſeparation between them, in their beauties alſo, and their varieties, the glory of Hagley conſiſts. No two of the openings are alike in dimenſions, in ſhape, or in character. One is of no more than five or ſix acres; another of not leſs than fifty; and others are of all the intermediate ſizes. Some ſtretch out into lengthened glades; ſome widen every way: they are again diſtinguiſhed by buildings, by proſpects, and often by the ſtyle only of the plantations around them. The boundary of one is deſcribed by a few careleſs lines; that of another is compoſed of many parts, very different, and very irregular: and the ground is never flat; but falls ſometimes in ſteep deſcents, ſometimes in gentle declivities, waves along eaſy ſwells, or is thrown into broken inequalities, with endleſs variety.

An octagon ſeat, ſacred to the memory of Thomſon, and erected on his favourite ſpot, ſtands on the brow of a ſteep; a mead winds along the valley beneath, till it is loſt on either hand behind ſome trees. Oppoſite to the ſeat, a noble wood crowns the top, and feathers down to the bottom of a large oval ſwelling hill. At it deſcends on one ſide, the diſtant country becomes the offskip. Over the fall, on the other ſide, the Clent hills appear. A duſky antique tower ſtands juſt below them, at the extremity of the wood; and in the midſt of it is ſeen a Doric portico, called *Pope's Building*, with part of the lawn before it. The ſcene is very ſimple: the principal features are great; they prevail over all the reſt, and are intimately connected with each other.

The next opening is ſmall, circling about a rotunda on a knoll, to the foot of which the ground riſes every way. The trees which ſurround it are large; but their foliage is not very thick; and their ſtems appearing beneath, their ramifications between the boughs are, in ſo confined a ſpot, very diſtinguiſhed and agreeable circumſtances. It is retired; has no proſpect; no viſible outlet but one, and that is ſhort and narrow, to a bridge with a portico upon it, which terminates a piece of water. Park.

The grove behind the rotunda ſeparates this from a large, airy, foreſt glade, thinly ſkirted with wood, careleſs of dreſs, and much overgrown with fern. The wildneſs is an acceptable relief in the midſt of ſo much elegance and improvement as reign in the neighbouring lawns: and the place is in itſelf pleaſant; in no part confined; and from a Gothic ſeat at the end is a perſpective view of that wood and tower which were ſeen before in front, together with the Witchberry hills, and a wide range of country.

The tower, which in proſpect is always connected with wood, ſtands however, on a piece of down, which ſtretches along the broad ridge of a hill, and ſpreads on each hand for ſome way down the ſides. Thick groves catch the falls. The deſcent on the right is ſoon loſt under the trees; but that on the left being ſteeper and ſhorter, it may be followed to the bottom. A wood hangs on the declivity, which is continued in the valley beneath. The tower overlooks the whole: it ſeems the remains of a caſtle, partly entire, partly in ruins, and partly overgrown with buſhes. A finer ſituation cannot be imagined: It is placed in an expoſed unfrequented ſpot; commands an extenſive proſpect; and is everywhere an intereſting object.

At the end of the valley below it in an obſcure corner, and ſhut out from all view, is a hermitage, compoſed of roots and of moſs: high banks, and a thick covert darkened with horſe cheſnuts, confine the ſequeſtered ſpot: a little rill trickles through it, and two ſmall pieces of water occupy the bottom. They are ſeen on one ſide through groups of trees; the other is open, but covered with fern. This valley is the extremity of the park; and the Clent hills riſe in all their irregularity immediately above it.

The other deſcent from the caſtle is a long declivity, covered like the reſt with noble woods, in which fine lawns are again emboſomed, differing ſtill from the former, and from each other. In one, the ground is very rough, the boundary is much broken, and marked only by the trunks of the trees which ſhoot up high before the branches begin. The next is more ſimple; and the ground falls from an even brow into one large hollow, which ſtops towards the glen, where it ſinks into the covert. This has a communication through a ſhort glade, and between two groves, with another called the *Tinian lawn*, from the reſemblance which it is ſaid to bear to thoſe of that celebrated iſland: it is encompaſſed with the ſtatelieſt trees, all freſh and vigorous, and ſo full of leaf, that not a ſtem, not a branch, appears, but large maſſes of foliage only deſcribe an undulating outline; the effect, however, is not produced by the boughs feathering down to the bottom; they in appearance ſhoot out horizontally, a few feet above the ground, to a ſurpriſing diſtance, and from underneath an edging of ſhade, into which the retreat is immediate at every hour of the day. The verdure of

Park. the turf is as luxuriant there as in the open ſpace: the ground gently waves in both over eaſy ſwells and little dips, juſt varying, not breaking, the ſurface. No ſtrong lines are drawn; no ſtriking objects are admitted; but all is of an even temper, all mild, placid, and ſerene; in the gayeſt ſeaſon of the day not more than cheerful, in the ſtilleſt watch of night not gloomy. The ſcene is indeed peculiarly adapted to the tranquillity of the latter, when the moon ſeems to repoſe her light on the thick foliage of the grove, and ſteadily marks the ſhade of every bough. It is delightful then to ſaunter here, and ſee the graſs, and the goſſamer which entwines it, gliſtening with dew; to liſten and hear nothing ſtir, except perhaps a withered leaf dropping gently through a tree; and, ſheltered from the chill, to catch the freſhneſs of the evening air: a ſolitary urn, choſen by Mr Pope for the ſpot, and now inſcribed to his memory, when ſhown by a gleam of moonlight through the trees, fixes that thoughtfulneſs and compoſure to which the mind is inſenſibly led by the reſt of this elegant ſcene.

The Doric portico, which alſo bears his name, though not within ſight, is near: it is placed on the declivity of a hill; and Thomſon's ſeat, with its groves and appendages, are agreeable circumſtances in the proſpect before it. In the valley beneath is fixed a bench, which commands a variety of ſhort views; one is up the aſcent to the portico, and others through openings in the wood to the bridge and the rotunda.

The next lawn is large: the ground is ſteep and irregular, but inclines to one direction, and falls from every ſide into the general declivity: the outline is diverſified by many groups of trees on the ſlopes; and frequent glimpſes of the country are ſeen in perſpective through openings between them. In the brow is a ſeat, in the proudeſt ſituation of all Hagley; it commands a view down the bold ſweep of the lawn, and over a valley filled with the nobleſt trees, up to the heights beyond. One of thoſe heights is covered with a hanging wood; which opens only to ſhow Thomſon's ſeat, and the groves and the ſteeps about it; the others are the Witchberry hills, which ſeem to preſs forward into the landſcape; and the maſſy heads of the trees in the vale, uniting into a continued ſurface, form a broad baſe to the temple of Theſeus, hide the ſwell on which it is built, and crowd up to the very foundation. Farther back ſtands the obeliſk; before it is the ſheep walk; behind it the Witchberry wood. The temple is backed by the firs; and both theſe plantations are connected with that vaſt ſylvan ſcene which overſpreads the other hill and all the intermediate valley. Such extent of wood; ſuch variety in the diſpoſition of it; objects ſo illuſtrious in themſelves, and ennobled by their ſituations, each contraſted to each, every one diſtinct, and all happily united; the parts ſo beautiful of a whole ſo great, ſeen from a charming lawn, and ſurrounded by a delightful country, compoſe all together a ſcene of real magnificence and grandeur.

The ſeveral lawns are ſeparated by the fineſt trees; which ſometimes grow in airy groves, chequered with gleams of light, and open to every breeze; but more frequently, whoſe great branches meeting or croſſing each other, caſt a deep impenetrable ſhade. Large boughs feathering down often intercept the ſight; or a vacant ſpace is filled with coppice wood, nut, hawthorn, and hornbeam, whoſe tufted heads mixing with the foliage, and whoſe little ſtems cluſtering about the trunks of the trees, thicken and darken the plantation. Here and there the diviſion is of ſuch coppice wood only, which then being leſs conſtrained and oppreſſed, ſprings up ſtronger, ſpreads further, and joins in a low vaulted covering: in other places the ſhade is high, overarched by the talleſt aſh, or ſpreads under the branches of the moſt venerable oaks. They riſe in every ſhape, they are diſpoſed in every form in which trees can grow. The ground beneath them is ſometimes almoſt level; ſometimes a gentle ſwell; but generally very irregular and broken. In ſeveral places, large hollows wind down the ſides of the hills, worn in the ſtormy months by water courſes, but worn many ages ago. Very old oaks in the midſt of the channels prove their antiquity: ſome of them are perfectly dry moſt part of the year; and ſome are watered by little rills all the ſummer: they are deep and broad; the ſides are commonly ſteep; often abrupt and hollow; and the trees on the bank ſometimes extend their roots, all covered with moſs, over the channels of the water. Low down in one of theſe glens, under a thick ſhade of horſe cheſnuts, is a plain bench, in the midſt of ſeveral little currents and water falls, running among large looſe ſtones, and the ſtumps of dead trees, with which the ground is broken. On the brink of another glen, which is diſtinguiſhed by a numerous rookery, is a ſeat in a ſtill wilder ſituation, near a deeper hollow, and in a darker gloom: the falls are nearly perpendicular; the roots of ſome of the trees are almoſt bare, from the earth having crumbled away; large boughs of others, ſinking with their own weight, ſeem ready to break from the trunks they belong to; and the fineſt aſh, ſtill growing, lie all aſlant the water courſe below, which, though the ſtream runs in winter only, yet conſtantly retains the black tinge of damp, and caſts a chill all around. Park.

Gravel walks are conducted acroſs the glens, through the woods, the groves, or the thickets, and along the ſides of the lawns, concealed generally from the ſight, but always ready for the communication, and leading to the principal ſcenes. The frequency of theſe walks, the number and the ſtyle of the buildings, and the high preſervation in which all the place is kept, give to the whole park the air of a garden. There is, however, one ſpot more peculiarly adapted to that purpoſe, and more artificially diſpoſed than the reſt; it is a narrow vale, divided into three parts: one of them is quite filled with water, which leaves no room for a path, but thick trees on either ſide come down quite to the brink; and between them the ſight is conducted to the bridge with a portico upon it, which cloſes the view: another part of this vale is a deep gloom, overhung with large aſh and oaks, and darkened below by a number of yews: theſe are ſcattered over very uneven ground, and open underneath; but they are encompaſſed by a thick covert, under which a ſtream falls, from a ſtony channel, down a rock; other rills drop into the current, which afterwards pours over a ſecond caſcade into the third diviſion of the vale, where it forms a piece of water, and is loſt under the bridge. The view from this bridge is a perfect opera ſcene, through all the diviſions of the vale up to the rotunda. Both theſe buildings, and the other decorations of the ſpot, are of the ſpecies generally confi-

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Park, Parker.

ned to a garden. The hermitage alſo, which has been deſcribed, and its appendages, are in a ſtyle which does not belong to a park; but through all the reſt of the place, the two characters are intimately blended. The whole is one ſubject; and it was a bold idea to conceive that one to be capable of ſo much variety; it required the moſt vigorous efforts of a fertile fancy to carry that idea into execution. See GARDENING.

PARK of Artillery. See ARTILLERY.

PARK of Proviſions, in military affairs, the place where the ſutlers pitch their tents in the rear, and ſell their proviſions to the ſoldiers. Likewiſe that place where the bread waggons are drawn up, and where the troops receive their ammunition bread, being the ſtore of the army.

PARKER, MATTHEW, the ſecond Proteſtant archbiſhop of Canterbury, was born at Norwich in the year 1504, the 19th of Henry VII. His father, who was a man in trade, died when our author was about twelve years old; but his mother took ſpecial care of his education, and at the age of 17 ſent him to Corpus Chriſti college in Cambridge, where, in 1523, he took his bachelor's degree. In 1527 he was ordained, created maſter of arts, and choſen fellow of the college. Having obtained a licenſe to preach, he frequently held forth at St Paul's croſs in London, and in other parts of the kingdom. In 1533 or 1534 he was made chaplain to Queen Anne Boleyn, who obtained for him the deanery of Stoke Clare in Suffolk, where he founded a grammar ſchool. After the death of the queen, King Henry made him his own chaplain, and in 1541 prebendary of Ely. In 1544, he was, by the king's command, elected maſter of Corpus Chriſti college, and the following year vice chancellor of the univerſity. In 1547 he loſt the deanery of Stoke, by the diſſolution of that college. In the ſame year he married the daughter of Robert Harleſtone, a Norfolk gentleman.

In the year 1552 he was nominated, by Edward VI. to the deanery of Lincoln, which, with his other preferments, enabled him to live in great affluence: but the papiſt Mary was hardly ſeated on the throne before he was deprived of every thing he held in the church, and obliged to live in obſcurity, frequently changing his place of abode to avoid the fate of the other reformers.

Queen Elizabeth aſcended the throne in 1558; and in the following year Dr Parker, from indigence and obſcurity, was at once raiſed to the ſee of Canterbury; an honour which he neither ſolicited nor deſired. In this high ſtation he acted with ſpirit and propriety. He viſited his cathedral and dioceſe in 1560, 1565, and 1573. He repaired and beautified his palace at Lambeth at a vaſt expence. The ſum which the repairs of the palace and great hall at Canterbury coſt him was upwards of 1400l. ſterling, which is at leaſt equal to ten times the ſum now-a-days. Both the palace and great hall were in decay, partly through the injuries of time, and partly through that of fire. The hall, built by Archbiſhop Huber in the 12th century, was famous in hiſtory for the great feaſts that had been given there by archbiſhops and abbots in former times; in particular, at the nuptial feaſts of King Edward I. in 1290; at the inſtallation of the abbot of St. Auſtin's in 1309; at the enthronization of George Nevill, archbiſhop of York, in 1464; and of Archbiſhop Warham in 1504, when Edward duke of Buckingham acted as lord high ſteward of his houſehold; and laſtly, for the entertainment given by that archbiſhop in 1519 to the emperor Charles V. Henry VIII. Queen Catherine, &c. In 1565 Archbiſhop Parker gave three entertainments in this hall at Whitſuntide (which laſted three days), on Trinity Sunday, and in aſſize time. At the two firſt of theſe the archbiſhop himſelf ſat in the midſt of the uppermoſt table; on his left hand the mayor, &c. and ſo on one ſide of the hall a continued row of men according to their rank filled the other tables; and on his right hand ſat only ſome noble women and ladies of quality, the whole length of the hall, correſponding to the row of men on the other ſide: which order of placing the women was obſerved in honour of the queen. The firſt rank of gueſts being riſen, and the tables cleared, they were furniſhed again, and filled the ſecond time. At the laſt feaſt, which was grander than all the reſt, the archbiſhop entertained the two judges who went that circuit (B), the attorney-general, the high-ſheriff, with all who met at theſe aſſizes, as juſtices of the peace, advocates, and common lawyers, and all the reſt of proctors and attorneys; who all (with a promiſcuous company) in troops came in. The hall was ſet forth with much plate of ſilver and gold, adorned with much tapeſtry of Flanders; and dainties of all ſorts were ſerved in excellent order by none but the archbiſhop's ſervants, the table being often the ſame day furniſhed afreſh with new gueſts; while the ladies were nobly entertained in inner parlours by Mrs Parker, the hall being now filled with gentlemen. Otherwiſe, at theſe feaſts, it was the archbiſhop's cuſtom, in honour of matrimony, to entertain both men and their wives. Of this noble hall and palace, now within 200 years, there is little or nothing left except a few ruins. On Whitſunday, 1570, and the two following days, this archbiſhop feaſted the citizens of Canterbury and their wives in the ſame manner as he had done before: and on Trinity Sunday (after conſecrating Biſhop Curteis of Chicheſter) he made another moſt archiepiſcopal feaſt, inviting another archbiſhop (viz. Grindal of York, who came thither for confirmation) to be his gueſt: beſides whom were preſent Horn biſhop of Wincheſter, and Curteis biſhop of Chicheſter. At the lower tables ſat all the miniſters and ſervants whatſoever, even the children, who belonged to that church; and at the remoteſt tables, but in the ſame hall, in ſight, ſat the poor of both ſexes of the hoſpitals of St John's and Harbledown. On July 11th, being aſſizes time, the judges, high-ſheriff, gentlemen, and the common ſort, were all feaſted by the archbiſhop in a ſplendid manner as before. Soon after Biſhop Sandys of Worceſter, elect of London, came to Canterbury to be confirmed. The archbiſhop, on his return, lodged the firſt night at Sittingbourn, and the next night (after dining at Graveſend)

Parker.

(B) This proves that the judges of aſſize then came to Canterbury, though it was then a county in itſelf, being ſo made in 1461.

Parker. send) came to Lambeth in barges by Thames, with all his family. Sept. 7. 1573, being Q. Elizabeth's birth-day, Archbiſhop Parker entertained her majeſty, and as many noblemen, &c. as were preſent at Archbiſhop Warham's entertainment in the ſame hall 54 years before. The archbiſhop (to uſe his own words, in a letter to Archbiſhop Grindal of York) "met her highneſs, as ſhe was coming to Dover, upon Folkſtone Down. I left her at Dover, and came home to Bekeſborn that night; and after that went to Canterbury to receive her majeſty there. Which I did, with the biſhops of Lincoln and Rocheſter, and my ſuffragan (of Dover), at the weſt door; where, after the grammarian had made his oration to her upon her horſe-back, ſhe alighted. We then kneeled down, and ſaid the pſalm *Deus miſereatur*, in Engliſh, with certain other collects briefly; and that in our chimers and rochets. The quire, with the dean and prebendaries, ſtood on either ſide of the church, and brought her majeſty up with a ſong; ſhe going under a ſquare canopy, borne by four of her temporal knights, to her traverſe, placed by the communion board, where ſhe heard evening ſong; and after departed to her lodging at St Auſtin's, whither I waited upon her. From thence I brought certain of the council, and divers of the court, to my houſe to ſupper, and gave them 14 or 15 diſhes, furniſhed with two meſs, at my long table, whereat ſat about 20; and in the ſame chamber a third meſs, at a ſquare table, whereat ſat 10 or 12; my leſs hall having three long tables furniſhed with my officers, and with the guard, and others of the court: and ſo her majeſty came every Sunday to church to hear the ſermon. And upon one Monday it pleaſed her highneſs to dine in my great hall, thoroughly furniſhed with the council, Frenchmen, ladies, gentlemen, and the mayor of the town, with his brethren, &c; her highneſs ſitting in the midſt, having two French ambaſſadors (Gondius and Mothe-Fenelon) at the end of the table, and four ladies of honour at the other end. And ſo three meſs were ſerved by her nobility at waſhing, her gentlemen and guard bringing her diſhes, &c." On which the archbiſhop of York, in his anſwer, made this reflection: "Your grace's large deſcription of the entertainment at Canterbury did ſo lively ſet forth the matter, that in reading thereof I almoſt thought myſelf to be one of your gueſts there, and as it were beholding the whole order of all things done there. Sir, I think it ſhall be hard for any of our coat to do the like for one hundred years, and how long after God knoweth." In this progreſs Lord Treaſurer Burleigh was lodged with Mr Pearſon, the eleventh prebendary, who, the archbiſhop ſays, "had a fine houſe."

He founded ſeveral ſcholarſhips in Bennet or Corpus-Chriſti college in Cambridge, and gave large preſents of plate to that and to other colleges in this univerſity. He gave 100 volumes to the public library. He likewiſe founded a free ſchool at Rochdale in Lancaſhire. He took care to have the ſees filled with pious and learned men; and, conſidering the great want of Bibles in many places, he, with the aſſiſtance of other learned men, improved the Engliſh tranſlation, had it printed on a large paper, and diſperſed through the kingdom. This worthy prelate died in the year 1575, aged 72, and was buried in his own chapel at Lambeth. He was pious without affectation or auſterity, cheerful and contented in the midſt of adverſity, moderate in the height of power, and beneficent beyond example. He wrote ſeveral books; and alſo publiſhed four of our beſt hiſtorians; *Matthew of Weſtminſter*, *Matthew Paris*, *Aſſer's Life of King Alfred*, and *Tho. Walſingham*. The learned archbiſhop alſo tranſlated the Pſalter. This verſion was printed, but without a name; and has been attributed to an obſcure poet of the name of Keeper. This was Wood's opinion; but it is more than probable that the learned author of the *Athenæ Oxon.* was wrong. See Gentleman's Magazine for 1781, p. 566. where Parker is proved to be the author of a verſion of the Pſalms.

Parkinſonia || Parliament.

PARKINSONIA, a genus of plants, belonging to the decandria claſs; and in the natural method ranking under the 33d order, *Lomentaceæ*. See BOTANY *Index*.

PARLEY, a conference with an enemy. Hence, to beat or ſound a parley, is to give a ſignal for holding ſuch a conference by beat of drum, or ſound of trumpet.

PARLIAMENT, the grand aſſembly of the three ſtates of this kingdom, ſummoned together by the king's authority, to conſider of matters relating to the public welfare, and particularly to enact and repeal laws.

1 Definition.

The original or firſt inſtitution of parliament is one of thoſe matters which lie ſo far hidden in the dark ages of antiquity, that the tracing of it out is a thing equally difficult and uncertain. The word *parliament* itſelf (or *colloquium*, as ſome of our hiſtorians tranſlate it) is, comparatively, of modern date; derived from the French, and ſignifying "the place where they met and conferred together." It was firſt applied to general aſſemblies of the ſtates under Lewis VII. in France, about the middle of the 12th century. But it is certain, that long before the introduction of the Norman language into England, all matters of importance were debated and ſettled in the great councils of the realm. A practice which ſeems to have been univerſal among the northern nations, particularly the Germans; and carried by them into all the countries of Europe, which they overran at the diſſolution of the Roman empire. Relicks of which conſtitution, under various modifications and changes, are ſtill to be met with in the diets of Poland, Germany, and Sweden, and lately in the aſſembly of the eſtates in France: for what is there now called the *parliament*, is only the ſupreme court of juſtice, conſiſting of the peers, certain dignified eccleſiaſtics, and judges; which neither is in practice, nor is ſuppoſed to be in theory, a general council of the realm.

2 Origin not certainly known.

In England, however, this general council hath been held immemorially, under the ſeveral names of *michel-ſynoth*, or "great council;" *michel-gemote* or "great meeting;" and more frequently *wittena-gemote*, or "the meeting of wiſe men." It was alſo ſtyled in Latin, *commune concilium regni*, *magnum concilium regis*, *curia magna*, *conventus magnatum vel procerum*, *aſſiſa generalis*, and ſometimes *communitas regni Angliæ*. We have inſtances of its meeting to order the affairs of the kingdom, to make new laws, and to amend the old, or, as Fleta expreſſes it, *novis injuriis emerſis nova conſtituere remedia*, ſo early as the reign of Ina king of the Weſt Saxons, Offa king of the Mercians, and Ethelbert king of Kent, in the ſeveral realms of the heptarchy. And after their union, the Mirrour informs us, that King Alfred ordained for a perpetual uſage, that theſe councils

3 Antiquity of, in England.

Parliament

cils ſhould meet twice in the year, or oftener, if need be, to treat of the government of God's people; how they ſhould keep themſelves from ſin, ſhould live in quiet, and ſhould receive right. Our ſucceeding Saxon and Daniſh monarchs held frequent councils of this ſort, as appears from their reſpective codes of laws; the titles whereof uſually ſpeak them to be enacted, either by the king with the advice of his *wittena-gemote*, or wiſe men, as, *Hæc ſunt inſtituta, quæ Edgarus rex conſilio ſapientium ſuorum inſtituit;* or to be enacted by thoſe ſages with the advice of the king: as, *Hæc ſunt judicia, quæ ſapientes conſilio regis Ethelſtani inſtituerunt;* or, laſtly, To be enacted by them both together, as *Hæ ſunt inſtitutiones, quas rex Edmundus et epiſcopi ſui cum ſapientibus ſuis inſtituerunt.*

There is alſo no doubt but theſe great councils were occaſionally held under the firſt princes of the Norman line. Glanvil, who wrote in the reign of Henry II. ſpeaking of the particular amount of an amercement in the ſheriff's court, ſays, it had never yet been aſcertained by the general aſſize or aſſembly, but was left to the cuſtom of particular counties. Here the general aſſize is ſpoken of as a meeting well known, and its ſtatutes or deciſions are put in a manifeſt contradiſtinction to cuſtom, or to the common law. And in Edward III's time, an act of parliament, made in the reign of William the Conqueror, was pleaded in the caſe of the abbey of St Edmund's Bury, and judicially allowed by the court.

4 The nature of theſe early parliaments not eaſily known.

Hence it indiſputably appears, that parliaments, or general councils, are coeval with the kingdom itſelf. How thoſe parliaments were conſtituted and compoſed, is another queſtion, which has been matter of great diſpute among our learned antiquarians; and particularly, whether the commons were ſummoned at all; or, if ſummoned, at what period they began to form a diſtinct aſſembly. But without entering into controverſies of this ſort, it may be ſufficient to obſerve, that it is generally agreed, that in the main the conſtitution of parliament, as it now ſtands, was marked out ſo long ago as the 17th year of King John, A. D. 1215, in the great charter granted by that prince; wherein he promiſes to ſummon all archbiſhops, biſhops, abbots, earls, and greater barons, perſonally; and all other tenants in chief under the crown, by the ſheriff and bailiffs; to meet at a certain place, with 40 days notice, to aſſeſs aids and ſcutages when neceſſary. And this conſtitution has ſubſiſted in fact at leaſt from the year 1266, 49 Henry III. there being ſtill extant writs of that date, to ſummon knights, citizens, and burgeſſes, to parliament. We proceed therefore to inquire wherein conſiſts this conſtitution of parliament, as it now ſtands, and has ſtood, for the ſpace of at leaſt 500 years. And in the proſecution of this inquiry, we ſhall conſider, firſt, The manner and time of its aſſembling: Secondly, Its conſtituent parts: Thirdly, The laws and cuſtoms relating to parliament: Fourthly, The methods of proceeding, and of making ſtatutes, in both houſes: And, laſtly, The manner of the parliament's adjournment: prorogation, and diſſolution.

5 Parliament ſummoned only by the king.

I. *As to the manner and time of aſſembling.* The parliament is regularly to be ſummoned by the king's writ or letter, iſſued out of chancery by advice of the privy council, at leaſt 40 days before it begins to ſit. It is a branch of the royal prerogative, that no parliament can be convened by its own authority, or by the authority of any except the king alone. And this prerogative is Parliament. founded upon very good reaſon. For, ſuppoſing it had a right to meet ſpontaneouſly, without being called together, it is impoſſible to conceive that all the members, and each of the houſes, would agree unanimouſly upon the proper time and place of meeting: and if half of the members met, and half abſented themſelves, who ſhall determine which is really the legiſlative body, the part aſſembled, or that which ſtays away? It is therefore neceſſary, that the parliament ſhould be called together at a determinate time and place; and, highly becoming its dignity and independence, that it ſhould be called together by none but one of its own conſtituent parts: and, of the three conſtituent parts, this office can only appertain to the king; as he is a ſingle perſon, whoſe will may be uniform and ſteady; the firſt perſon in the nation, being ſuperior to both houſes in dignity; and the only branch of the legiſlature that has a ſeparate exiſtence, and is capable of performing any act at a time when no parliament is in being. Nor is it an exception to this rule, that, by ſome modern ſtatutes, on the demiſe of a king or queen, if there be then no parliament in being, the laſt parliament revives, and is to ſit again for ſix months, unleſs diſſolved by the ſucceſſor: for this revived parliament muſt have been originally ſummoned by the crown.

6 The convention parliament no juſt exception to this;

It is true, that the convention parliament which reſtored King Charles II. met above a month before his return; the lords by their own authority, and the commons in purſuance of writs iſſued in the name of the keepers of the liberty of England by authority of parliament; and that the ſaid parliament ſat till the 29th of December, full ſeven months after the Reſtoration; and enacted many laws, ſeveral of which are ſtill in force. But this was for the neceſſity of the thing, which ſuperſedes all law; for if they had not ſo met, it was morally impoſſible that the kingdom ſhould have been ſettled in peace. And the firſt thing done after the king's return was, to paſs an act declaring this to be a good parliament, notwithſtanding the defect of the king's writ. So that as the royal prerogative was chiefly wounded by their ſo meeting, and as the king himſelf, who alone had a right to object, conſented to wave the objection, this cannot be drawn into an example in prejudice of the rights of the crown. Beſides, we ſhould alſo remember, that it was at that time a great doubt among the lawyers, whether even this healing act made it a good parliament, and held by very many in the negative; though it ſeems to have been too nice a ſcruple. And yet, out of abundant caution, it was thought neceſſary to confirm its acts in the next parliament, by ſtatute 13 Car. II. c. 7. and c. 14.

7 nor that of 1688, becauſe they originated *ex neceſſitate rei.*

It is likewiſe true, at the time of the Revolution A. D. 1688, the lords and commons by their own authority, and upon the ſummons of the prince of Orange (afterwards King William), met in a convention, and therein diſpoſed of the crown and kingdom. But it muſt be remembered, that this aſſembling was upon a like principle of neceſſity as at the Reſtoration; that is, upon a full conviction that King James II. had abdicated the government, and that the throne was thereby vacant: which ſuppoſition of the individual members was confirmed by their concurrent reſolution, when they actually came together. And in ſuch a caſe as the palpable vacancy of a throne, it follows, *ex neceſſitate rei*, that the form.

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form of the royal writs muſt be laid aſide, otherwiſe no parliament can ever meet again. For let us put another poſſible caſe, and ſuppoſe, for the ſake of argument, that the whole royal line ſhould at any time fail, and become extinct, which would indiſputably vacate the throne: in this ſituation it ſeems reaſonable to preſume, that the body of the nation, conſiſting of lords and commons, would have a right to meet and ſettle the government at all. And upon this and no other principle did the convention in 1688 aſſemble. The vacancy of the throne was precedent to their meeting without any royal ſummons, not a conſequence of it. They did not aſſemble without writ, and then make the throne vacant; but, the throne being previouſly vacant by the king's abdication, they aſſembled without writ, as they muſt do if they aſſembled at all. Had the throne been full, their meeting would not have been regular: but, as it was really empty, ſuch meeting became abſolutely neceſſary, And accordingly, it is declared by ſtatute 1 W. & M. ſtat. 1. c. 1. that this convention was really the two houſes of parliament, notwithſtanding the want of writs or other defects of form. So that, notwithſtanding theſe two capital exceptions, which were juſtifiable only on a principle of neceſſity (and each of which, by the way, induced a revolution in the government), the rule laid down is in general certain, that the king only can convoke a parliament.

8 The king is obliged to convoke parliament as often as circumſtances require.

And this, by the ancient ſtatutes of the realm, he is bound to do every year, or oftener if need be. Not that he is, or ever was, obliged by theſe ſtatutes to call a new parliament every year; but only to permit a parliament to ſit annually for the redreſs of grievances, and deſpatch of buſineſs, if need be. Theſe laſt words are ſo looſe and vague, that ſuch of our monarchs as were inclined to govern without parliaments, neglected the convoking them, ſometimes for a very conſiderable period, under pretence that there was no need of them. But, to remedy this, by the ſtatute 16 Car. II. c. 1. it is enacted, that the ſitting and holding of parliaments ſhall not be intermitted above three years at the moſt. And by the ſtatute 1 W. and M. ſt. 2. c. 2. it is declared to be one of the rights of the people, that for redreſs of all grievances, and for the amending, ſtrengthening, and preſerving, the laws, parliaments ought to be held frequently. And this indefinite frequency is again reduced to a certainty by ſtatute 6 W. & M. c. 2. which enacts, as the ſtatute of Charles II. has done before, that a new parliament ſhall be called within three years after the determination of the former.

9 The king, lords ſpiritual and temporal, and commons, make the parliament.

II. *The conſtituent parts of a parliament are*, the king's majeſty, ſitting there in his royal political capacity, and the three eſtates of the realm; the lords ſpiritual, the lords temporal (who ſit together with the king in one houſe), and the commons, who ſit by themſelves in another. And the king and theſe three eſtates together form the greater corporation or body politic of the kingdom, of which the king is ſaid to be *caput*, *principium*, *et finis*. For upon their coming together the king meets them, either in perſon or by repreſentation; without which there can be no beginning of a parliament; and he alſo has alone the power of diſſolving them.

It is highly neceſſary for preſerving the balance of the conſtitution, that the executive power ſhould be a branch, though not the whole, of the legiſlature. The total union of them, we have ſeen, would be productive of tyranny: the total disjunction of them, for the preſent would in the end produce the ſame effects, by cauſing that union againſt which it ſeems to provide. The legiſlature would ſoon become tyrannical, by making continual encroachments, and gradually aſſuming to itſelf the rights of the executive power. Thus the long parliament of Charles I. while it acted in a conſtitutional manner, with the royal concurrence, redreſſed many heavy grievances and eſtabliſhed many ſalutary laws. But when the two houſes aſſumed the power of legiſlation, in excluſion of the royal authority, they ſoon after aſſumed likewiſe the reins of adminiſtration; and, in conſequence of theſe united powers, overturned both church and ſtate, and eſtabliſhed a worſe oppreſſion than any they pretended to remedy. To hinder therefore any ſuch encroachments, the king is himſelf a part of the parliament; and as this is the reaſon of his being ſo, very properly therefore the ſhare of legiſlation which the conſtitution has placed in the crown, conſiſts in the power of rejecting, rather than reſolving; this being ſufficient to anſwer the end propoſed. For we may apply to the royal negative, in this inſtance, what Cicero obſerves of the negative of the Roman tribunes, that the crown has not any power of doing wrong, but merely of preventing wrong from being done. The crown cannot begin of itſelf any alterations in the preſent eſtabliſhed law; but it may approve or diſapprove of the alterations ſuggeſted aud conſented to by the two houſes. The legiſlature therefore cannot abridge the executive power of any rights which it now has by law, without its own conſent; ſince the law muſt perpetually ſtand as it now does, unleſs all the powers will agree to alter it. And herein indeed conſiſts the true excellence of the Britiſh government, that all the parts of it form a mutual check upon each other. In the legiſlature, the people are a check upon the nobility, and the nobility a check upon the people, by the mutual privilege of rejecting what the other has reſolved; while the king is a check upon both, which preſerves the executive power from encroachments. And this very executive power is again checked and kept within due bounds by the two houſes, through the privilege they have of inquiring into, impeaching, and puniſhing the conduct (not indeed of the king, which would deſtroy his conſtitutional independence; but which is more beneficial to the public) of his evil and pernicious counſellors. Thus every branch of our civil polity ſupports and is ſupported, regulates and is regulated, by the reſt: for the two houſes naturally drawing in two directions of oppoſite intereſt, and the prerogative in another ſtill different from them both, they mutually keep each other from exceeding their proper limits; while the whole is prevented from ſeparation, and artificially connected together by the mixed nature of the crown, which is a part of the legiſlative, and the ſole executive magiſtrate. Like three diſtinct powers in mechanics, they jointly impel the machine of government in a direction different from what either, acting by itſelf, would have done; but at the ſame time in a direction partaking of each, and formed out of all; a direction which conſtitutes the true line of the liberty and happineſs of the community,

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10 The propriety and neceſſity of the king's being a branch of the legiſlature.

Having already conſidered theſe conſtituent parts of the

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the ſovereign power, or parliament, each in a ſeparate view, under the articles KING, LORDS, and COMMONS, to which the reader is referred, we proceed,

11 The power of parliament.

III. To examine the laws and cuſtoms relating to parliament, united together and conſidered as one aggregate body. The power and juriſdiction of parliament, ſays Sir Edward Coke, is ſo tranſcendent and abſolute, that it cannot be confined either for cauſes or perſons within any bounds. And of this high court he adds, it may be truly ſaid, *Si antiquitatem ſpectes, eſt vetuſtiſſima; ſi dignitatem, eſt honoratiſſima; ſi juriſdictionem, eſt capaciſſima.* It hath ſovereign and uncontrollable authority in making, confirming, enlarging, reſtraining, abrogating, repealing, reviving, and expounding laws, concerning matters of all poſſible denominations, eccleſiaſtical or temporal, civil, military, maritime, or criminal: this being the place where that abſolute deſpotic power, which muſt in all governments reſide ſomewhere, is intruſted by the conſtitution of theſe kingdoms. All miſchiefs and grievances, operations and remedies, that tranſcend the ordinary courſe of the laws, are within the reach of this extraordinary tribunal. It can regulate or new-model the ſucceſſion to the crown; as was done in the reign of Henry VIII. and William III. It can alter the eſtabliſhed religion of the land; as was done in a variety of inſtances in the reigns of King Henry VIII. and his three children. It can change and create afreſh even the conſtitution of the kingdom and of parliaments themſelves; as was done by the act of Union, and the ſeveral ſtatutes for triennial and ſeptennial elections. It can, in ſhort, do every thing that is not naturally impoſſible; and therefore ſome have not ſcrupled to call its power, by a figure rather too bold, the *omnipotence of parliament.* True it is, that what the parliament doth, no authority upon earth can undo. So that it is a matter moſt eſſential to the liberties of this kingdom, that ſuch members be delegated to this important truſt as are moſt eminent for their probity, their fortitude, and their knowledge; for it was a known apophthegm of the great lord treaſurer Burleigh, "That England could never be ruined but by a parliament; and, as Sir Matthew Hale obſerves, this being the higheſt and greateſt court, over which none other can have juriſdiction in the kingdom, if by any means a miſgovernment ſhould anyway fall upon it, the ſubjects of this kingdom are left without all manner of remedy. To the ſame purpoſe the Preſident Monteſquieu, though we truſt too haſtily, preſages, that as Rome, Sparta, and Carthage, have loſt their liberty and periſhed; ſo the conſtitution of England will in time loſe its liberty, will periſh: it will periſh whenever the legiſlative power ſhall become more corrupt than the executive.

12 Mr Locke's opinion reſpecting this power.

It muſt be owned, that Mr Locke, and other theoretical writers, have held, that "there remains ſtill inherent in the people a ſupreme power to remove or alter the legiſlature, when they find the legiſlature act contrary to the truſt repoſed in them: for when ſuch truſt is abuſed, it is thereby forfeited, and devolves to thoſe who gave it." But however juſt this concluſion may be in theory, we cannot adopt it, or argue from it, under any diſpenſation of government at preſent actually exiſting. For this devolution of power, to the people at large, includes in it a diſſolution of the whole form of government eſtabliſhed by that people; reduces all the members to their original ſtate of equality; and by annihilating the ſovereign power, repeals all poſitive laws whatſoever before enacted. No human laws will therefore ſuppoſe a caſe, which at once muſt deſtroy all law, and compel men to build afreſh upon a new foundation; nor will they make proviſion for ſo deſperate an event, as muſt render all legal proviſions ineffectual. So long therefore as the Engliſh conſtitution laſts, we may venture to affirm, that the power of parliament is abſolute and without controul.

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In order to prevent the miſchiefs that might ariſe, by placing this extenſive authority in hands that are either incapable or elſe improper to manage it, it is provided by the cuſtom and law of parliament, that no one ſhall ſit or vote in either houſe, unleſs he be 21 years of age. This is alſo expreſsly declared by ſtatute 7 & 8 W. III. c. 25.: with regard to the houſe of commons, doubts have ariſen, from ſome contradictory adjudications, whether or not a minor was incapacitated from ſitting in that houſe. It is alſo enacted by ſtatute 7 Jac. I. c. 6. that no member be permitted to enter the houſe of commons till he hath taken the oath of allegiance before the lord ſteward or his deputy: and by 30 Car. II. ſt. 2. and 1 Geo. I. c. 13. that no member ſhall vote or ſit in either houſe, till he hath, in the preſence of the houſe, taken the oaths of allegiance, ſupremacy, aad abjuration, and ſubſcribed and repeated the declaration againſt tranſubſtantiation, and invocation of ſaints, and the ſacrifice of the maſs. Aliens, unleſs naturalized, were likewiſe by the law of parliament incapable to ſerve therein: and now it is enacted, by ſtatute 12 & 13 W. III. c. 2. that no alien, even though he be naturalized, ſhall be capable of being a member of either houſe of parliament. And there are not only theſe ſtanding incapacities; but if any perſon is made a peer by the king, or elected to ſerve in the houſe of commons by the people, yet may the reſpective houſes, upon complaint of any crime in ſuch perſon, and proof thereof, adjudge him diſabled and incapable to ſit as a member: and this by the law and cuſtom of parliament.

13 The qualifications of members.

14 The cuſtoms of parliament which are not ſanctioned by expreſs laws.

For as every court of juſtice hath laws and cuſtoms for its direction, ſome the civil and canon, ſome the common law, others their own peculiar laws and cuſtoms; ſo the high court of parliament hath alſo its own peculiar law, called the *lex et conſuetudo parliamenti;* a law which Sir Edward Coke obſerves is *ab omnibus quærenda, à multis ignorata, à paucis cognita.* It will not therefore be expected that we ſhould enter into the examination of this law with any degree of minuteneſs; ſince, as the ſame learned author aſſures us, it is much better to be learned out of the rolls of parliament and other records, and by precedents and continual experience, than can be expreſſed by any one man. It will be ſufficient to obſerve, that the whole of the law and cuſtom of parliament has its original from this one maxim, "That whatever matter ariſes concerning either houſe of parliament, ought to be examined, diſcuſſed, and adjudged in that houſe to which it relates, and not elſewhere." Hence, for inſtance, the lords will not ſuffer the commons to interfere in the ſettling the election of a peer in Scotland; the commons will not allow the lords to judge of the election of a burgeſs; nor will either houſe permit the ſubordinate courts of law to examine the merits of either caſe. But the maxims

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15 Its extenſive privileges.

The privileges of parliament are likewiſe very large and indefinite; and therefore, when in 31ſt Hen. VI. the houſe of lords propounded a queſtion to the judges concerning them, the chief juſtice, Sir John Forteſcue, in the name of his brethren, declared, "That they ought not to make anſwer to that queſtion; for it hath not been uſed aforetime, that the juſtices ſhould in anywiſe determine the privileges of the high court of parliament; for it is ſo high and mighty in its nature, that it may make law; and that which is law, it may make no law; and the determination and knowledge of that privilege belong to the lords of parliament, and not to the juſtices." Privilege of parliament was principally eſtabliſhed, in order to protect its members not only from being moleſted by their fellow-ſubjects, but alſo more eſpecially from being oppreſſed by the power of the crown. If therefore all the privileges of parliament were once to be ſet down and aſcertained, and no privilege to be allowed but what was ſo defined and determined, it were eaſy for the executive power to deviſe ſome new caſe, not within the line of privilege, and under pretence thereof to haraſs any refractory member, and violate the freedom of parliament. The dignity and independence of the two houſes are therefore in great meaſure preſerved by keeping their privileges indefinite. Some, however, of the more notorious privileges of the members of either houſe are, privileges of ſpeech, of perſon, of their domeſtics, and of their lands and goods. As to the firſt, privilege of ſpeech, it is declared by the ſtatute 1 W. and M. ſt. 2. c. 2. as one of the liberties of the people, "That the freedom of ſpeech, and debates, and proceedings in parliament, ought not to be impeached or queſtioned in any court or place out of parliament." And this freedom of ſpeech is particularly demanded of the king in perſon, by the ſpeaker of the houſe of commons, at the opening of every new parliament. So likewiſe are the other privileges, of perſon, ſervants, lands, and goods; which are immunities as ancient as Edward the Confeſſor: in whoſe laws we find this precept, *ad ſynodos venientibus, ſive ſummoniti ſint, ſive per ſe quid agendum habuerint, ſit ſumma pax;* and ſo too in the old Gothic conſtitutions, *Extenditur hæc pax et ſecuritas ad quatuordecim dies, convocato regni ſenatu.* This included formerly not only privilege from illegal violence, but alſo from legal arreſts and ſeizures by proceſs from the courts of law. And ſtill to aſſault by violence a member of either houſe, or his menial ſervants, is a high contempt of parliament, and there puniſhed with the utmoſt ſeverity. It has likewiſe peculiar penalties annexed to it in the courts of law by the ſtatutes 5 Hen. IV. c. 6. and 11 Hen. VI. c. 11. Neither can any member of either houſe be arreſted and taken into cuſtody without a breach of the privilege of parliament.

16 Some privileges abolished.

But all other privileges which derogate from the common law are now at an end, ſave only as to the freedom of the member's perſon; which in a peer (by the privilege of peerage) is for ever ſacred and inviolable; and in a commoner (by the privilege of parliament) for forty days after every prorogation, and forty days before the next appointed meeting; which is now in effect as long as the parliament ſubſiſts, it ſeldom being prorogued for more than 80 days at a time. As to all other privileges which obſtruct the ordinary courſe of juſtice, they were reſtrained by the ſtatutes 12 W. III. c. 3. 2 and 3 Ann. c. 18. and 11 Geo. II. c. 24. and are now totally aboliſhed by ſtatute 10 G. III. c. 50.; which enacts, that any ſuit may at any time be brought againſt any peer or member of parliament, their ſervants, or any other perſon entitled to privilege of parliament; which ſhall not be impeached or delayed by pretence of any ſuch privilege, except that the perſon of a member of the houſe of commons ſhall not thereby be ſubjected to any arreſt or impriſonment. Likewiſe, for the benefit of commerce, it is provided by ſtatute 4 Geo. III. c. 33. that any trader, having privilege of parliament, may be ſerved with legal proceſs for any juſt debt (to the amount of 100l.): and unleſs he makes ſatisfaction within two months, it ſhall be deemed an act of bankruptcy; and that commiſſions of bankruptcy may be iſſued againſt ſuch privileged traders in like manner as againſt any other. Parliament.

17 Members may be arreſted; but parliament muſt be informed of it, and of the cauſe, &c.

The only way by which courts of juſtice could anciently take cognizance of privilege of parliament was by writ of privilege, in the nature of a *ſuperſedeas*, to deliver the party out of cuſtody when arreſted in a civil ſuit. For when a letter was written by the ſpeaker to the judges, to ſtay proceedings againſt a privileged perſon, they rejected it as contrary to their oath of office. But ſince the ſtatute 12 Will. III. c. 3. which enacts, that no privileged perſon ſhall be ſubject to arreſt or impriſonment, it hath been held, that ſuch arreſt is irregular *ab initio*, and that the party may be diſcharged upon motion. It is to be obſerved, that there is no precedent of any ſuch writ of privilege, but only in civil ſuits; and that the ſtatute of 1 Jac. I. c. 13. and that of King William (which remedy ſome inconveniences ariſing from privilege of parliament), ſpeak only of civil actions. And therefore the claim of privilege hath been uſually guarded with an exception as to the caſe of indictable crimes; or, as it hath been frequently expreſſed, of treaſon, felony, and breach (or ſurety) of the peace. Whereby it ſeems to have been underſtood, that no privilege was allowable to the members, their families, or ſervants, in any *crime*, whatſoever; for all crimes are treated by the law as being *contra pacem domini regis*. And inſtances have not been wanting, wherein privileged perſons have been convicted of miſdemeanors, and committed, or proſecuted to outlawry, even in the middle of a ſeſſion; which proceeding has afterwards received the ſanction and approbation of parliament. To which may be added, that a few years ago, the caſe of writing and publiſhing ſeditious libels was reſolved by both houſes not to be entitled to privilege; and that the reaſons upon which that caſe proceeded, extended equally to every indictable offence. So that the chief, if not the only, privilege of parliament, in ſuch caſes, ſeems to be the right of receiving immediate information of the impriſonment or detention of any member, with the reaſon for which he is detained: a practice that is daily uſed upon the ſlighteſt military accuſations, preparatory to a trial by a court martial; and which is recogniſed by the ſeveral temporary ſtatutes for ſuſpending the *habeas corpus* act: whereby it is provided, that no member of either houſe ſhall be detained, till the matter of which he ſtands ſuſpected be firſt communicated to the houſe of which he is a member, and the conſent of the

ſaid

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said houſe obtained for his commitment or detaining. But yet the uſage has uniformly been, ever ſince the Revolution, that the communication has been ſubſequent to the arreſt.

Theſe are the general heads of the laws and cuſtoms relating to parliament, conſidered as one aggregate body. The laws and cuſtoms relating to each branch in particular being explained under the articles already referred to, viz. KING, LORDS, and COMMONS, we ſhould proceed, IV. To the method of making laws; which is much the ſame in both houſes. But for this, too, we have to refer the reader to the article BILL; and ſhall only obſerve in this place, that, for deſpatch of buſineſs, each houſe of parliament has its ſpeaker. The ſpeaker of the houſe of lords, whoſe office it is to preſide there, and manage the formality of buſineſs, is the lord chancellor, or keeper of the king's great ſeal, or any other appointed by the king's commiſſion: and if none be ſo appointed, the houſe of lords (it is ſaid) may elect.—The ſpeaker of the houſe of commons is choſen by the houſe; but muſt be approved by the king. And herein the uſage of the two houſes differs, that the ſpeaker of the houſe of commons cannot give his opinion or argue any queſtion in the houſe; but the ſpeaker of the houſe of lords, if a lord of parliament, may. In each houſe the act of the majority binds the whole; and this majority is declared by votes openly and publicly given; not, as at Venice, and many other ſenatorial aſſemblies, privately, or by ballot. This latter method may be ſerviceable, to prevent intrigues and unconſtitutional combinations; but it is impoſſible to be practiſed with us, at leaſt in the houſe of commons, where every member's conduct is ſubject to the future cenſure of his conſtituents, and therefore ſhould be openly ſubmitted to their inſpection.

18 Of the lord chancellor and ſpeaker of the houſe of commons.

19 Of the adjournment of parliament.

V. There remains only, in the laſt place, to add a word or two concerning the manner in which parliament may be *adjourned*, *prorogued*, or *diſſolved*.

An *adjournment* is no more than a continuance of the ſeſſion from one day to another; as the word itſelf ſignifies; and this is done by the authority of each houſe ſeparately every day; and ſometimes for a fortnight or a month together, as at Chriſtmas or Eaſter, or upon other particular occaſions. But the adjournment of one houſe is no adjournment of the other. It hath alſo been uſual, when his majeſty hath ſignified his pleaſure, that both or either of the houſes ſhould adjourn themſelves to a certain day, to obey the king's pleaſure ſo ſignified, and to adjourn accordingly.—Otherwiſe, beſides the indecorum of a refuſal, a prorogation would aſſuredly follow; which would often be very inconvenient to both public and private buſineſs. For prorogation puts an end to the ſeſſion; and then ſuch bills as are only begun, and not perfected, muſt be reſumed *de novo* (if at all) in a ſubſequent ſeſſion; whereas, after an adjournment, all things continue in the ſame ſtate as at the time of the adjournment made, and may be proceeded on without any freſh commencement.

20 Of prorogation of parliament.

A *prorogation* is the continuance of the parliament from one ſeſſion to another; as an adjournment is a continuation of the ſeſſion from day to day. This is done by the royal authority, expreſſed either by the lord chancellor in his majeſty's preſence, or by commiſſion from the crown, or frequently by proclamation. Both houſes are neceſſarily prorogued at the ſame time; it not being a prorogation of the houſe of lords or commons, but of the parliament. The ſeſſion is never underſtood to be at an end until a prorogation; though, unleſs ſome act be paſſed, or ſome judgement given in parliament, it is in truth no ſeſſion at all. And formerly the uſage was, for the king to give the royal aſſent to all ſuch bills as he approved at the end of every ſeſſion, and then to prorogue the parliament, though ſometimes only for a day or two; after which all buſineſs then depending in the houſes was to be begun again. Which cuſtom obtained ſo ſtrongly, that it once became a queſtion, Whether giving the royal aſſent to a ſingle bill did not of courſe put an end to the ſeſſion? And though it was then reſolved in the negative, yet the notion was ſo deeply rooted, that the ſtatute 1 Car. I. c. 7. was paſſed to declare, that the king's aſſent to that and ſome other acts ſhould not put an end to the ſeſſion; and even ſo late as the reign of Charles II. we find a proviſo frequently tacked to a bill, that his majeſty's aſſent thereto ſhould not determine the ſeſſion of parliament. But it now ſeems to be allowed, that a prorogation muſt be expreſsly made, in order to determine the ſeſſion. And if at the time of an actual rebellion, or imminent danger of invaſion, the parliament ſhall be ſeparated by adjournment or prorogation, the king is empowered to call them together by proclamation, with 14 days notice of the time appointed for their reaſſembling.

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21 Parliament is diſſolved by the king's will,

A *diſſolution* is the civil death of the parliament; and this may be effected three ways: 1. By the king's will, expreſſed either in perſon or by repreſentation. For as the king has the ſole right of convening the parliament, ſo alſo it is a branch of the royal prerogative, that he may (whenever he pleaſes) prorogue the parliament for a time, or put a final period to its exiſtence. If nothing had a right to prorogue or diſſolve a parliament but itſelf, it might happen to become perpetual. And this would be extremely dangerous, if at any time it ſhould attempt to encroach upon the executive power; as was fatally experienced by the unfortunate King Charles I.; who, having unadviſedly paſſed an act to continue the parliament then in being till ſuch time as it ſhould pleaſe to diſſolve itſelf, at laſt fell a ſacrifice to that inordinate power which he himſelf had conſented to give them. It is therefore extremely neceſſary that the crown ſhould be empowered to regulate the duration of theſe aſſemblies, under the limitations which the Engliſh conſtitution has preſcribed: ſo that, on the one hand, they may frequently and regularly come together for the deſpatch of buſineſs and redreſs of grievances; and may not, on the other, even with the conſent of the crown, be continued to an inconvenient or unconſtitutional length.

22 or in conſequence of his death,

2. A parliament may be diſſolved by the demiſe of the crown. This diſſolution formerly happened immediately upon the death of the reigning ſovereign: for he being conſidered in law as the head of the parliament, (*caput*, *principium*, *et finis*), that failing, the whole body was held to be extinct. But the calling a new parliament immediately on the inauguration of the ſucceſſor being found inconvenient, and dangers being apprehended from having no parliament in being in caſe of a diſputed ſucceſſion, it was enacted by the ſtatutes 7 and 8 Wm. III. c. 15. and 6 Ann, c. 7. that the parliament in being ſhall continue for ſix months after the death of any king or queen, unleſs ſooner prorogued or diſſolved

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ved by the ſucceſſor; that if the parliament be, at the time of the king's death, ſeparated, by adjournment or prorogation, it ſhall notwithſtanding aſſemble immediately: and that if no parliament is then in being, the members of the laſt parliament ſhall aſſemble and be again a parliament.

23 or through length of time.

3. Laſtly, A parliament may be diſſolved or expire by length of time. For if either the legiſlative body were perpetual, or might laſt for the life of the prince who convened them as formerly, and were ſo to be ſupplied, by occaſionally filling the vacancies with new repreſentatives; in theſe caſes, if it were once corrupted, the evil would be paſt all remedy; but when different bodies ſucceed each other, if the people ſee cauſe to diſapprove of the preſent, they may rectify its faults in the next. A legiſlative aſſembly alſo, which is ſure to be ſeparated again, (whereby its members will themſelves become private men, and ſubject to the full extent of the laws which they have enacted for others), will think themſelves bound, in intereſt as well as duty, to make only ſuch laws as are good. The utmoſt extent of time that the ſame parliament was allowed to ſit, by the ſtatute 6 W. and M. c. 3. was *three* years: after the expiration of which, reckoning from the return of the firſt ſummons, the parliament was to have no longer continuance. But by the ſtatute 1 Geo. I. ſtat. 2. c. 38. (in order, profeſſedly, to prevent the great and continued expences of frequent elections, and the violent heats and animoſities conſequent thereupon, and for the peace and ſecurity of the government then juſt recovering from the late rebellion), this term was prolonged to *ſeven* years; and, what alone is an inſtance of the vaſt authority of parliament, the very ſame houſe that was choſen for three years, enacted its own continuance for ſeven. So that, as our conſtitution now ſtands, the parliament muſt expire, or die a natural death, at the end of every ſeventh year, if not ſooner diſſolved by the royal prerogative.

We ſhall conclude this article with an account of ſome general forms not taken notice of under any of the above heads.

24 General forms obſerved in the houſe of peers.

In the houſe of lords, the princes of the blood ſit by themſelves on the ſides of the throne; at the wall, on the king's right hand, the two archbiſhops ſit by themſelves on a form. Below them, the biſhops of London, Durham, and Wincheſter, and all the other biſhops, ſit according to the priority of their conſecration. On the king's left hand the lord treaſurer, lord preſident, and lord privy ſeal, ſit upon forms above all dukes, except the royal blood; then the dukes, marquiſes, and earls, according to their creation. Acroſs the room are wool ſacks, continued from an ancient cuſtom; and the chancellor, or keeper, being of courſe the ſpeaker of the houſe of lords, ſits on the firſt wool ſack before the throne, with the great ſeal or mace lying by him; below theſe are forms for the viſcounts and barons. On the other wool ſacks are ſeated the judges, maſters in chancery, and king's council, who are only to give their advice in points of law; but they all ſtand up till the king gives them leave to ſit.

25 In the houſe of commons.

The commons ſit promiſcuouſly; only the ſpeaker has a chair at the upper end of the houſe, and the clerk and his aſſiſtant ſit at a table near him.

When a member of the houſe of commons ſpeaks, he ſtands up uncovered, and directs his ſpeech to the ſpeaker only. If what he ſays be anſwered by another, he is not allowed to reply the ſame day, unleſs perſonal reflections have been caſt upon him: but when the commons, in order to have a greater freedom of debate, have reſolved themſelves into a committee of the whole houſe, every member may ſpeak to a queſtion as often as he thinks neceſſary. In the houſe of lords they vote, beginning at the puiſne or loweſt baron, and ſo up orderly to the higheſt, every one anſwering, *Content* or *Not content*. In the houſe of commons they vote by *yeas* and *nays*; and if it be dubious which are the greater number, the houſe divides. If the queſtion be about bringing any thing into the houſe, the *yeas* go out, but if it be about any thing the houſe already has, the *nays* go out. In all diviſions the ſpeaker appoints four tellers, two of each opinion. In a committee of the whole houſe, they divide by changing ſides, the *yeas* taking the right and the *nays* the left of the chair; and then there are but two tellers. If a bill paſs one houſe, and the other demur to it, a conference is demanded in the painted chamber, where certain members are deputed from each houſe; and here the lords ſit covered, and the commons ſtand bare, and debate the caſe. If they diſagree, the affair is null: but if they agree, this, with the other bills that have paſſed both houſes, is brought down to the king in the houſe of lords, who comes thither clothed in his royal robes; before him the clerk of the parliament reads the title of each bill, and as he reads, the clerk of the crown pronounces the royal aſſent or diſſent. If it be a public bill, the royal aſſent is given in theſe words, *Le roy le veut*, "The king will have it ſo;" if private, *Soit fait comme il eſt deſiré*, "Let the requeſt be complied with;" if the king refuſes the bill, the anſwer is, *Le roy s'aviſera*, "The king will think of it;" and if it be a money bill, the anſwer is, *Le roy remercie ſes loyaux ſujets, accepte leur benevolence, et auſſi le veut*; "The king thanks his loyal ſubjects, accepts their benevolence, and therefore grants his conſent."

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26 Manner of expreſſing the royal aſſent or diſſent to bills.

High Court of PARLIAMENT, is the ſupreme court in the kingdom, not only for the making, but alſo for the execution of laws; by the trial of great and enormous offenders, whether lords or commoners, in the method of parliamentary impeachment. As for acts of parliament to attaint particular perſons of treaſon or felony, or to inflict pains and penalties, beyond or contrary to the common law, to ſerve a ſpecial purpoſe, we ſpeak not of them; being to all intents and purpoſes new laws, made *pro re nata*, and by no means an execution of ſuch as are already in being. But an impeachment before the lords by the commons of Great Britain, in parliament, is a proſecution of the already known and eſtabliſhed law, and has been frequently put in practice; being a preſentment to the moſt high and ſupreme court of criminal juriſdiction by the moſt ſolemn grand inqueſt of the whole kingdom. A commoner cannot, however, be impeached before the lords for any capital offence, but only for high miſdemeanors; a peer may be impeached for any crime. And they uſually (in caſe of an impeachment of a peer for treaſon) addreſs the crown to appoint a lord high ſteward, for the greater dignity and regularity of their proceedings; which high ſteward was formerly elected by the peers themſelves, though he was generally commiſſioned by the king; but it hath of late years been ſtrenuouſly maintained, that the appointment

Parliament. ment of a high ſteward in ſuch caſes is not indiſpenſably neceſſary, but that the houſe may procced without one. The articles of impeachment are a kind of bills of indictment, found by the houſe of commons, and afterwards tried by the lords; who are in caſes of miſdemeanors conſidered not only as their own peers, but as the peers of the whole nation. This is a cuſtom derived to us from the conſtitution of the ancient Germans; who in their great councils ſometimes tried capital accuſations relating to the public: *Licet apud concilium accuſare quoque, et diſcrimen capitis intendere.* And it has a peculiar propriety in the Engliſh conſtitution; which has much improved upon the ancient model imported hither from the continent. For though in general the union of the legiſlative and judicial powers ought to be moſt carefully avoided, yet it may happen that a ſubject, intruſted with the adminiſtration of public affairs, may infringe the rights of the people, and be guilty of ſuch crimes as the ordinary magiſtrate either dares not or cannot puniſh. Of theſe the repreſentatives of the people, or houſe of commons, cannot properly judge; becauſe their conſtituents are the parties injured, and can therefore only impeach. But before what court ſhall this impeachment be tried? Not before the ordinary tribunals, which would naturally be ſwayed by the authority of ſo powerful an accuſer. Reaſon therefore will ſuggeſt, that this branch of the legiſlature, which repreſents the people, muſt bring its charge before the other branch, which conſiſts of the nobility, who have neither the ſame intereſts, nor the ſame paſſions, as popular aſſemblies. This is a vaſt ſuperiority which the conſtitution of this iſland enjoys over thoſe of the Grecian or Roman republics; where the people were at the ſame time both judges and accuſers. It is proper that the nobility ſhould judge, to enſure juſtice to the accuſed; as it is proper that the people ſhould accuſe, to enſure juſtice to the commonwealth. And therefore, among other extraordinary circumſtances attending the authority of this court, there is one of a very ſingular nature, which was inſiſted on by the houſe of commons in the caſe of the earl of Danby in the reign of Chas. II. and is now enacted by ſtatute 12 and 13 W. III. c. 2. that no pardon under the great ſeal ſhall be pleadable to an impeachment by the commons of Great Britain in parliament.

Such is the nature of a Britiſh parliament, and in theory at leaſt we ſhould preſume it were nearly perfect; but ſome of our fellow countrymen, more zealous perhaps than wiſe, ſee prodigious faults in it, ſuch indeed as they think muſt inevitably prove fatal. The conſequence of this perſuaſion has been a loud and inceſſant call for parliamentary reform. That abuſes ought to be reformed, is certain; and that few inſtitutions are ſo perfect as not to need amendment, is a fact equally indiſputable. We ſhall even ſuppoſe that there are many abuſes in our parliament which would require to be amended; but, granting all this, and ſomething more if it were neceſſary, we would recommend in the mean time to the ſerious conſideration of thoſe who call themſelves the *Friends of the People*, whoſe ſincerity in their profeſſions it would be impolite to queſtion, the example of France, and that they would allow it to be a warning to Britain. France wanted reform indeed, and that which was firſt propoſed had the countenance of the cooleſt and the beſt of men; but the conſequences have been dreadful; and if ever a free and ſtable government take place in it, which we ſincerely wiſh may be ſoon, it will have been purchaſed at an immenſe price, by enormities which will diſgrace it whilſt the remembrance of them laſts. Parliament, Parma.

The former *PARLIAMENTS of France* were ſovereign courts eſtabliſhed by the king, finally to determine all diſputes between particular perſons, and to pronounce on appeals from ſentences given by inferior judges.—There were ten of theſe parliaments in France, of which that of Paris was the chief, its privileges and juriſdiction being of the greateſt extent. It conſiſted of eight chambers: the grand chamber, where cauſes of audience were pleaded; the chamber of written law; the chamber of counſel; the Tournelle criminelle, for judging criminal affairs; the Tournelle civile, in aid of the grand chamber; and three chambers of inqueſts, where proceſſes were adjudged in writing: beſides theſe, there was alſo the chamber of vacations, and thoſe of requeſts. In 1771 the king thought fit to branch the parliament of Paris into ſix different parliaments, under the denomination of ſuperior courts, each parliament having ſimilar juriſdiction. Under their ſecond race of kings, this parliament, like that of England, was the king's council; it gave audience to ambaſſadors, and conſulted of the affairs of war and government. The king, like ours, at that time preſided in them, without being at all maſter of their reſolutions. But in after times their authority was abridged; as the kings reſerved the deciſion of the grand affairs of the public to their own councils; leaving none but private ones to the parliaments. The parliament of Paris alſo enjoyed the privileges of verifying and regiſtering the king's arrets or edicts, without which thoſe edicts were of little or no value.

PARLIAMENT of Sweden, conſiſts of four eſtates, with the king at their head. Theſe eſtates are, 1. The nobility and repreſentatives of the gentry; with whom the colonels, lieutenant colonels, majors, and captains of every regiment, ſit and vote. 2. The clergy; one of which body is elected from every rural deanery of ten pariſhes; who, with the biſhops and ſuperintendents, amount to about 200. 3. The burghers, elected by the magiſtrates and council of every corporation as their repreſentatives, of whom there are four for Stockholm, and two for every other town, amounting in the whole to about 150. 4. The peaſants, choſen by the peaſants out of every diſtrict; who chooſe one of their own rank, and not a gentleman, to repreſent them: theſe amount to about 250.

All theſe generally meet at Stockholm: and after the ſtate affairs have been repreſented to them from the throne, they ſeparate, and ſit in four ſeveral chambers or houſes, in each of which affairs are carried on by majority of votes; and every chamber has a negative in the paſſing any law.

PARMA, an ancient, rich, populous, and handſome town of Italy, capital of the duchy of the ſame name, with a citadel, a biſhop's ſee, and an univerſity. It has a magnificent cathedral, and the largeſt opera houſe in Europe, which has ſeats for 8000 people; but as it required a vaſt number of candles, which occaſioned great expence, they have contrived another which has room for 2000 ſpectators. The dome and the church of St John are painted by the famous Corregio, who was a native of this place. Don Carlos, king of the two Sicilies, carried

Parma || Parmigiano.

carried away the library to Naples, which contained 18,000 volumes, and a very valuable cabinet of curioſities, as alſo the rich collection of medals. The citadel, which is very near the city, is built in the ſame taſte as that at Antwerp. In 1734 there was a bloody battle fought here; and in 1741, by the treaty of Aix-la-Chapelle, the duchies of Parma, Placentia, and Guaſtalla, were given to Don Philip, brother to Don Carlos above mentioned. It is 30 miles ſouth-eaſt of Cremona, and 60 ſouth-eaſt of Milan. E. Long. 10. 51. N. Lat. 44. 50.

PARMA, the duchy of, a province of Italy, bounded on the north by the Po; on the north-eaſt by the Mantuan; on the eaſt by the duchy of Modena; on the ſouth by Tuſcany; and on the weſt by the duchy of Placentia. The air is very wholeſome, on which account the inhabitants live to a great age. The ſoil is very fertile in corn, wine, oil, and hemp; the paſtures feed a great number of cattle, and the cheeſe is in very high eſteem. Here are conſiderable mines of copper and ſilver.

PARMESAN CHEESE, a ſort of cheeſe much eſteemed among the Italians; ſo named from the duchy of Parma where it is made, and whence it is conveyed to various parts of Europe.

The excellent paſture grounds of this country are watered by the Po; and the cows from whoſe milk this cheeſe is made yield a great quantity of it. Of this cheeſe there are three ſorts; the *fromaggio di forma*, about two palms in diameter, and ſeven or eight inches thick; and the *fromaggia di ribiole* and *di ribolini*, which are not ſo large. This cheeſe is of a ſaffron colour; and the beſt is kept three or four years. See CHEESE.

PARMIGIANO, a celebrated painter, whoſe true name was Franceſco Mazzuoli; but he received the former from the city of Parma, where he was born, in 1504. He was brought up under his two uncles, and was an eminent painter when but 16 years of age. He was famous all over Italy at 19; and at 23 performed ſuch wonders, that when the general of the emperor Charles V. took Rome by ſtorm, ſome of the common ſoldiers having, in ſacking the town broke into his apartments, found him intent upon his work, and were inſtantly ſo ſtruck with the beauty of his pieces, that inſtead of involving him in the plunder and deſtruction in which they were then employed, they reſolved to protect him from all manner of violence; which they actually performed. His works are diſtinguiſhed by the beauty of the colouring, the invention, and drawing. His figures are ſpirited and graceful, particularly with reſpect to the choice of attitude, and in their dreſſes. He alſo excelled in muſic, in which he much delighted.

In large compoſitions Parmigiano did not always reach a high degree of excellence; but in his holy families, and other ſimilar ſubjects, the gracefulneſs of his heads, and the elegance of his attitudes, are peculiarly delightful. For the celebrity of his name he ſeems to be chiefly indebted to his numerous drawings and etchings; for his life being ſhort, and a great part of it conſumed in the idle ſtudy of alchemy, in purſuit of the philoſopher's ſtone, and in the ſeducing avocations of muſic and gambling, there was but little time left for application to the laborious part of his buſineſs. His paintings in oil are few in number, and held in high eſteem, as are alſo his drawings and etchings; good impreſſions of theſe laſt being very rarely to be found. He was the firſt that practiſed the art of etching in Italy; and probably he did not at firſt know, that it had been for ſome years practiſed in Germany. When he ſet out for Rome, he was adviſed to take ſome of his pictures with him, as a means of getting himſelf introduced into the acquaintance of the nobility and artiſts in that celebrated city. One of them is mentioned by his biographers as a maſterpiece. It was his own portrait painted upon a piece of wood of a convex form, in imitation of a convex mirror. The ſurface is ſaid to have been ſo wonderfully executed, that it had the appearance of real glaſs, and the head, as well as every part of the furniture of the chamber in which he was ſuppoſed to ſit, was ſo artfully managed, that the whole formed a very complete piece of deception. At Rome he was employed by Pope Clement VII. who was highly pleaſed with his performances, and rewarded him liberally. A circumciſion which he painted for him was particularly eſteemed as a capital work. In it Parmigiano was ſucceſsful in introducing a variety of lights, without deſtroying the general harmony. When Charles V. came to Bologna to be crowned emperor of the Romans, Parmigiano failed not to be preſent at that ſingular ceremony; and ſo accurately marked the countenance of the emperor, that at his return home, he was enabled from memory to make out a ſurpriſing likeneſs. In the ſame piece he introduced the figure of Fame placing a crown of laurel on the head of the emperor, whilſt a young Hercules preſented him with a globe of the world. Before it was quite finiſhed, the painter and his piece were introduced to Charles by the Pope, but to little purpoſe; for the emperor left Bologna a few days after, without ordering him any recompenſe for his labour. In the church of Madona della Stercato at Parma are ſtill to be ſeen ſeveral of the works of this artiſt; among which one of Sibyls, and two others of Moſes, and of Adam and Eve, are much admired. So alſo is a Dead Chriſt, with the Virgin in ſorrow, in the church of the Dominicans at Cremona. In the Houghton collection of pictures, now in poſſeſſion of the empreſs of Ruſſia, is one of his beſt pictures, repreſenting Chriſt laid in the ſepulchre, for which he is ſaid to have been knighted by the duke of Parma. His principal works are at Parma, where he died poor in 1540.

Parmigiano || Parnaſſus.

PARNASSIA, graſs of Parnaſſus; a genus of plants belonging to the pentandria claſs. See BOTANY *Index*.

PARNASSUS (Strabo, Pindar, Virgil), a mountain of Phocis, near Delphi, and the mounts Cithæron and Helicon, with two tops (Ovid, Lucan); the one called *Cirrha*, ſacred to Apollo; and the other *Niſa*, ſacred to Bacchus, (Juvenal). It was covered with bay trees (Virgil); and originally called *Larnaſſus*, from Deucalion's larnax or ark, thither conveyed by the flood, (Stephanus, Scholiaſt on Apollonius); after the flood, *Parnaſſus;* from Har Nahas, changing the *h* into *p*, the hill of divination or augury (Peucerus); the oracle of Delphi ſtanding at its foot.

Chandler *, who viſited it, thus deſcribes it:—"Parnaſſus was the weſtern boundary of Phocis, and ſtretching northward from about Delphi toward the Oetæan mountains, ſeparated the weſtern Locri from thoſe who poſſeſſed the ſea coaſt before Eubœa. It was a place of refuge

* *Travels in Greece.*

Parnaſſus. refuge to the Delphians in times of danger. In the deluge, which happened under Deucalion, the natives were ſaved on it by following the cry of wolves. On the invaſion by Xerxes, ſome tranſported their families over to Achaia, but many concealed them in the mountain, and in Corycium, a grotto of the Nymphs. All Parnaſſus was renowned for ſanctity, but Corycium was the moſt noted among the hallowed caves and places. 'On the way to the ſummit of Parnaſſus, ſays Pauſanias, as much as 60 ſtadia beyond Delphi, is a brazen image; and from thence the aſcent to Corycium is eaſier for a man on foot, and for mules and horſes. Of all the caves in which I have been, this appeared to me the beſt worth ſeeing. On the coaſts, and by the ſea ſide, are more than can be numbered; but ſome are very famous both in Greece and in other countries. The Corycian cave exceeds in magnitude thoſe I have mentioned, and for the moſt part may be paſſed through without a light. It is ſufficiently high: and has water, ſome ſpringing up, and yet more from the roof, which petrifies; ſo that the bottom of the whole cave is covered with ſparry icicles. The inhabitants of Parnaſſus eſteem it ſacred to the Corycian Nymphs, and particularly to Pan.—From the cave to reach the ſummits of the mountain is difficult even to a man on foot. The ſummits are above the clouds, and the women called *Thyades* madden on them in the rites of Bacchus and Apollo.' Their frantic orgies were performed yearly. Wheler and his company aſcended Parnaſſus from Delphi, ſome on horſes, by a track between the ſtadium and the cleſts of the mountain. Stairs were cut in the rock, with a ſtrait channel, perhaps a water duct.—In a long hour, after many traverſes, they gained the top, and entering a plain turned to the right, towards the ſummits of Caſtalia, which are divided by deep precipices. From this eminence they had a fine proſpect of the gulf of Corinth, and of the coaſt; Mount Cirphis appearing beneath them as a plain, bounded on the eaſt by the bay of Aſproſpitia, and on the weſt by that of Salona. A few ſhepherds had huts there. They returned to the way which they had quitted, and croſſed a hill covered with pines and ſnow. On their left was a lake, and beyond it a peak, exceedingly high, white with ſnow. They travelled to the foot of it through a valley, four or five miles in compaſs; and reſted by a plentiful fountain called *Droſonigo*, the ſtream boiling up a foot in diameter, and nearly as much above the ſurface of the ground. It runs into the lake, which is about a quarter of a mile diſtant to the ſouth-eaſt. They did not diſcover Corycium, or proceed farther on, but keeping the lake on their right, came again to the brink of the mountain, and deſcended by a deep and dangerous track to Racovi, a village four or five miles eaſtward from Delphi. It was the opinion of Wheler, that no mountain in Greece was higher than Parnaſſus; that it was not inferior to Mount Cenis among the Alps; and that, if detached, it would be ſeen at a greater diſtance than even Mount Athos. The ſummits are perpetually increaſing, every new fall of ſnow adding to the perennial heap, while the ſun has power only to thaw the ſuperficies. Caſtalis Pleiſtus and innumerable ſprings are fed, ſome inviſibly, from the lakes and reſervoirs, which, without theſe drains and ſubterraneous vents, would ſwell, eſpecially after heavy rain and the melting of ſnow, ſo as to fill the valleys, and run over the tops of the rocks down upon Delphi, ſpreading wide an inundation, ſimilar, as has been ſurmiſed, to the Deucalonian deluge." Parnell, Parody.

PARNELL, Dr Thomas, a very ingenious divine and poet in the early part of the 18th century. He was archdeacon of Clogher, and the intimate friend of Mr Pope; who publiſhed his works, with an elegant copy of recommendatory verſes prefixed. He died in 1718, aged 39.

Johnſon † ſays, "The life of Dr Parnell is a taſk which I ſhould very willingly decline, ſince it has been lately written by Goldſmith, a man of ſuch variety of powers, and ſuch facility of performance, that he always ſeemed to do beſt that which he was doing; a man who had the art of being minute without tedioufneſs, and general without confuſion; whoſe language was copious without exuberance, exact without conſtraint, and eaſy without weakneſs. † *Lives of the Poets.*

"What ſuch an author has told, who would tell again? I have made an extract from his larger narrative; and ſhall have this gratification from my attempt, that it gives me an opportunity of paying due tribute to the memory of a departed genius.

'Το γαρ γερας εστι θανοντων.'

"The general character of Parnell is not great extent of comprehenſion, or fertility of mind. Of the little that appears ſtill leſs is his own. His praiſe muſt be derived from the eaſy ſweetneſs of his diction: in his verſes there is more happineſs than pains; he is ſprightly without effort, and always delights though he never raviſhes; every thing is proper, yet every thing ſeems caſual. If there is ſome appearance of elaboration in the Hermit, the narrative, as it is leſs airy, is leſs pleaſing. Of his other compoſitions, it is impoſſible to ſay whether they are the productions of Nature ſo excellent as not to want the help of Art, or of Art ſo refined as to reſemble Nature."

PARODICAL degrees, in an equation, a term ſometimes uſed to denote the ſeveral regular terms in a quadratic, cubic, biquadratic, &c. equation, when the indices of the powers aſcend or deſcend orderly in an arithmetical progreſſion. Thus, $x^3+mx^2+nx=p$ is a cubic equation where no term is wanting, but having all its parodic degrees; the indices of the terms regularly deſcending thus, 3, 2, 1, 0.

PARODY, a popular maxim, adage, or proverb.

Parody, is alſo a poetical pleaſantry, conſiſting in applying the verſes written on one ſubject, by way of ridicule, to another; or in turning a ſerious work into a burleſque, by affecting to obſerve as near as poſſible the ſame rhimes, words, and cadences.

The parody was firſt ſet on foot by the Greeks; from whom we borrow the name. It comes near to what ſome of our late writers call *traveſty*. Others have more accurately diſtinguiſhed between a parody and burleſque; and they obſerve, that the change of a ſingle word may parody a verſe; or of a ſingle letter a word. Thus, in the laſt caſe, Cato expoſed the inconſtant diſpoſition of Marcus Fulvius Nobilior, by changing Nobilior into Mobilior. Another kind of parody conſiſts in the mere application of ſome known verſe, or part of a verſe of a writer, without making any change in it, with a view to expoſe it. A fourth inſtance is that of writing verſes in the taſte and ſtile of authors little approved.

Parole || Paros.

proved. The rules of parody regard the choice of a ſubject, and the manner of treating it. The ſubject ſhould be a known and celebrated work: as to the manner, it ſhould be by an exact imitation, and an intermixture of good-natured pleaſantry.

PAROLE, in a military ſenſe, the promiſe made by a priſoner of war, when he has leave to go anywhere, of returning at a time appointed, if not exchanged.

PAROLE, means alſo a word given out every day in orders by the commanding officer, both in camp and garriſon, in order to know friends from enemies.

PARONOMASIA, in *Rhetoric*, a pun; or a figure whereby words nearly alike in ſound, but of very different meanings, are affectedly or deſignedly uſed. See ORATORY, N° 76.

PARONYCHIA, the WHITLOW, in *Surgery*, is an abſceſs at the end of the fingers. According as it is ſituated more or leſs deep, it is differently denominated, and divided into ſpecies. See SURGERY *Index*.

PAROS, in *Ancient Geography*, an iſland of the Ægean ſea, one of the Cyclades, with a ſtrong cognominal town, 38 miles diſtant from Delos (Pliny, Nepos). Anciently called *Pactye* and *Minoa* (Pliny); alſo *Demetrias*, *Zacynthus*, *Hyria*, *Hylceſſa*, and *Cabarnis* (Nicanor). The country of Archilochus the iambic poet (Strabo). An iſland famous for its white marble (Virgil, Horace, Ovid), called *lychnites*, becauſe dug with lamps (Pliny). The name of Cabarnis is borrowed, according to Stephanus, from one Cabarnus, who firſt informed Ceres of the rape of her daughter Proſerpine; or, according to Heſychius, from the Cabarni, the prieſts of Ceres being ſo called by the inhabitants of this iſland. The name of Minoa is borrowed from Minos king of Crete, who ſubdued this, as he did moſt of the other iſlands of the Ægean ſea. It was called Paros, which name it retains to this day, from Paros the ſon of Parrhaſius, or, as Stephanus will have it, of Jaſon the Argonaut. Paros, according to Pliny's computation, is diſtant from Naxos ſeven miles and a half, and 28 from Delos. Some modern travellers ſuppoſe that it is 80, others only 50 miles in compaſs. Pliny ſays it is half as large as Naxos, that is, between 36 and 37 miles in compaſs. It was a rich and powerful iſland, being termed the moſt wealthy and happy of the Cyclades, and by Cornelius Nepos an iſland elated with its riches. The city of Paros, the metropolis, is ſtyled by Stephanus a potent city, and one of the largeſt in the Archipelago: the preſent city of Paros, now Parichia, is ſuppoſed to have been built upon its ruins, the country abounding with valuable monuments of antiquity. The very walls of the preſent city are built with columns, architraves, pedeſtals, mingled with pieces of ancient marble of a ſurpriſing magnitude, which were once employed in more noble edifices. Paros was indeed formerly famous for its marble, which was of an extraordinary whiteneſs, and in ſuch requeſt among the ancients that the beſt ſtatuaries uſed no other (A). The iſland is provided with ſeveral capacious and ſafe harbours, and was anciently much reſorted to by traders. It was, according to Thucydides, originally peopled by the Phœnicians, who were the firſt maſters of the ſea. Afterwards the Carians ſettled here, as we are told by Thucydides and Diodorus. But theſe two authors differ as to the time when the Carians came firſt into the iſland; for Thucydides tells us, that the Carians were driven out by the Cretans under the conduct of Minos; and Diodorus writes, that the Carians did not ſettle here till after the Trojan war, when they found the Cretans in poſſeſſion of the iſland. Stephanus thinks that the Cretans, mixed with ſome Arcadians, were the only people that ever poſſeſſed this iſland. Minos himſelf if we believe Pliny, reſided ſome time in the iſland of Paros, and received here the melancholy news of the death of his ſon Androgeus, who was killed in Attica after he had diſtinguiſhed himſelf at the public games. We find the inhabitants of this iſland choſen from among all the Greeks by the Mileſians to compoſe the differences which had for two generations rent that unhappy ſtate into parties and factions. They acquitted themſelves with great prudence, and reformed the government. They aſſiſted Darius in his expedition againſt Greece with a conſiderable ſquadron; but after the victory obtained by Miltiades at Marathon, they were reduced to great ſtraits by that general. However, after blocking up the city for 26 days, he was obliged to quit the enterpriſe, and return to Athens with diſgrace. Upon his departure, the Parians were informed that Timo, a prieſteſs of the national gods, and then his priſoner, had adviſed him to perform ſome ſecret ceremony in the temple of Ceres, near the city; aſſuring him that he would thereby gain the place. Upon this information they ſent deputies to conſult the oracle of Delphi, whether they ſhould puniſh her with death, for endeavouring to betray the city to the enemy, and diſcovering the ſacred myſteries to Miltiades. The Pythian anſwered, that Timo was not the adviſer; but that the gods, having reſolved to deſtroy Miltiades, had only made her the inſtrument of his death. After the battle of Salamis, Themiſtocles ſubjected Paros and moſt of the other neighbouring iſlands to Athens, exacting large ſums from them by way of puniſhment for having favoured the Perſians. It appears from the famous monument of Adulas, which Coſmos of Egypt has deſcribed with great exactneſs, that Paros and the other Cyclades were once ſubject to the Ptolemies of Egypt. However, Paros fell again under the power of the Athenians, who continued maſters of it till they were driven out by Mithridates

Paros.

(A) Sutherland ſays, "that while its marble quarries continued to be worked, Paros was one of the moſt flouriſhing of the Cyclades; but on the decline of the eaſtern empire they were entirely neglected, and are now converted into caves, in which the ſhepherds ſhelter their flocks. We have been in ſeveral of theſe ſubterraneous folds, which put me much in mind of Homer's deſcription of Polyphemus. The common walls are almoſt entirely compoſed of marble; and in examining a very ſmall part of one, we found ſeveral pieces of cornice and baſſo relievo. Several fine blocks of marble (fragments of columns) are lying cloſe to the water's edge; and ſeem to have been brought there by travellers, who for want of a proper purchaſe to get them on board, have not been able to carry them further."

Paros ‖ Parr.

thridates the Great. But that prince being obliged to yield to Sylla, to Lucullus, and to Pompey, this and the other iſlands of the Archipelago ſubmitted to the Romans, who reduced them to a province with Lydia, Phrygia, and Caria.

Mr Sutherland, who lately viſited Paros, ſays, that "the water in it is excellent; and as that which we got at Meſſina has been complained of, as being too hard to make proper peaſe ſoup for the people, all the caſks are ordered to be emptied and refilled. The Ruſſians made this place their grand arſenal; their powder magazines, and ſeveral other buildings, are ſtill ſtanding; and the iſland is conſiderably indebted to them for improving the convenience for water, and for the trade which the caſh they expended introduced among the inhabitants."

PAROTIDES, or PAROTIDS, are glands ſituated on each ſide of the head. See ANATOMY *Index*.

PAROXYSM, in *Medicine*, the ſevere fit of a diſeaſe, under which it grows higher or exaſperated; as of the gout, &c.

PARR, CATHARINE, queen of England, was the eldeſt daughter of Sir Thomas Parr of Kendall. She was firſt married to John Nevil, Lord Latymer; after whoſe death, by her marriage with Henry VIII. ſhe was raiſed to the throne. The royal nuptials were ſolemnized at Hampton Court on the 12th of July 1543. Being religiouſly diſpoſed, ſhe was, in the early part of her life, a zealous obſerver of the Romiſh rites and ceremonies; but in the dawning of the Reformation, ſhe became as zealous a promoter of the Lutheran doctrine; yet with ſuch prudence and circumſpection as her perilous ſituation required. Nevertheleſs, we are told, that ſhe was in great danger of falling a ſacrifice to the Popiſh faction, the chief of whom was Biſhop Gardiner: he drew up articles againſt her, and prevailed on the king to ſign a warrant to remove her to the Tower. This warrant was, however, accidentally dropped, and immediately conveyed to her majeſty. What her apprehenſions muſt have been on this occaſion may be eaſily imagined. She knew the monarch, and ſhe could not help recollecting the fate of his former queens. A ſudden illneſs was the natural conſequence. The news of her indiſpoſition brought the king to her apartment. He was laviſh in expreſſions of affection, and ſent her a phyſician. His majeſty being ſoon after alſo ſomewhat indiſpoſed, ſhe prudently returned the viſit; with which the king ſeemed pleaſed, and began to talk with her on religious ſubjects, propoſing certain queſtions, concerning which he wanted her opinion. She anſwered, that ſuch profound ſpeculations were not ſuited to her ſex; that it belonged to the huſband to chooſe principles for his wife; the wife's duty was, in all caſes, to adopt implicitly the ſentiments of her huſband: and as to herſelf, it was doubly her duty, being bleſſed with a huſband who was qualified, by his judgement and learning, not only to chooſe principles for his own family, but for the moſt wiſe and knowing of every nation. "Not ſo, by St Mary," replied the king; "you are now become a doctor, Kate, and better fitted to give than receive inſtruction." She meekly replied, that ſhe was ſenſible how little ſhe was entitled to theſe praiſes; that though ſhe uſually declined not any converſation, however ſublime, when propoſed by his majeſty, ſhe well knew that her conceptions could ſerve to no other purpoſe than to give him a little momentary amuſement; that ſhe found the converſation a little apt to languiſh when not revived by ſome oppoſition, and ſhe had ventured ſometimes to feign a contrariety of ſentiments, in order to give him the pleaſure of refuting her; and that ſhe alſo propoſed, by this innocent artifice, to engage him into topics whence ſhe had obſerved, by frequent experience, that ſhe reaped profit and inſtruction. "And is it ſo, ſweetheart?" replied the king; "then we are perfect friends again." He embraced her with great affection, and ſent her away with aſſurances of his protection and kindneſs. Parr.

The time being now come when ſhe was to be ſent to the Tower, the king, walking in the garden, ſent for the queen, and met her with great good humour; when lo the chancellor, with forty of the guards, approached. He fell upon his knees, and ſpoke ſoftly with the king, who called him knave, arrant knave, beaſt, fool, and commanded him inſtantly to depart. Henry then returned to the queen, who ventured to intercede for the chancellor: "Ah, poor ſoul," ſaid the king, "thou little knoweſt how evil he deſerveth this grace at thy hands. Of my word, ſweetheart, he hath been toward thee an arrant knave; and ſo let him go." The king died in January 1547, juſt three years and a half after his marriage with this ſecond Catharine: who in a ſhort time was again eſpouſed to Sir Thomas Seymour lord-admiral of England; for in September 1548 ſhe died in childbed. The hiſtorians of this period generally inſinuate that ſhe was poiſoned by her huſband, to make way for his marriage with the lady Elizabeth.

That Catharine Parr was beautiful is beyond a doubt: that ſhe was pious and learned is evident from her writings: and that her prudence and ſagacity were not inferior to her other accompliſhments, may be concluded from her holding up the paſſion of a capricious tyrant as a ſhield againſt her enemies; and that at the latter end of his days, when his paſſions were enfeebled by age, and his peeviſh auſterity increaſed by diſeaſe. She wrote, 1. Queen Catharine Parr's lamentation of a ſinner, bewailing the ignorance of her blind life; Lond. 8vo. 1548, 1563. 2. Prayers or meditations, wherein the mynd is ſtirred patiently to ſuffre all afflictions here, to ſet at nought the vaine proſperitee of this worlde, and always to long for the everlaſtynge felicitee. Collected out of holy workes, by the moſt virtuous and gracious princeſſe Katherine, Queen of Englande, France, and Irelande. Printed by John Wayland, 1545, 4to,—1561, 12mo. 3. Other Meditations, Prayers, Letters, &c. unpubliſhed.

PARR, *Thomas*, or *Old Parr*, a remarkable Engliſhman, who lived in the reigns of ten kings and queens; married a ſecond wife when he was 120, and had a child by her. He was the ſon of John Parr, a huſbandman of Winnington, in the pariſh of Alderbury, in the county of Salop, where he was born in the year 1483. Though he lived to the vaſt age of upwards of 152 years, yet the tenor of his life admitted but of little variety; nor can the detail of it be conſidered of importance, further than what will ariſe from the gratification of that curioſity which naturally inquires after the mode of living which could lengthen life to ſuch

Parr. extreme old age. Following the profeſſion of his father, he laboured hard, and lived on coarſe fare. Taylor the water poet ſays of him:

Good wholeſome labour was his exerciſe,
Down with the lamb, and with the lark would riſe;
In mire and toiling ſweat he ſpent the day,
And to his team he whiſtled time away:
The cock his night-clock, and till day was done,
His watch and chief ſun-dial was the ſun.
He was of old Pythagoras' opinion,
That green cheeſe was moſt wholeſome with an onion;
Coarſe meſlin bread, and for his daily ſwig,
Milk, butter milk, and water, whey and whig:
Sometimes metheglin, and by fortune happy,
He ſometimes ſipp'd a cup of ale moſt nappy,
Cyder or perry, when he did repair
T' a Whitſun ale, wake, wedding, or a fair,
Or when in Chriſtmas time he was a gueſt
At his good landlord's houſe amongſt the reſt:
Elſe he had little leiſure time to waſte,
Or at the alehouſe huff-cap ale to taſte.
Nor did he ever hunt a tavern fox;
Ne'er knew a coach, tobacco, or the ——.
His phyſic was good butter, which the ſoil
Of Salop yields, more ſweet than Candy oil;
And garlic he eſteem'd above the rate
Of Venice treacle, or beſt mithridate.
He entertain'd no gout, no ache he felt,
The air was good and temperate where he dwelt;
While maviſſes and ſweet-tongu'd nightingales
Did chant him roundelays and madrigals.
Thus living within bounds of Nature's laws,
Of his long laſting life may be ſome cauſe.

And the ſame writer deſcribes him in the following two lines:

From head to heel, his body had all over
A quick ſet, thick ſet, natural hairy cover.

The manner of his being conducted to London is alſo noticed in the following terms: "The right honourable Thomas earl of Arundel and Surrey, earl marſhal of England, on being lately in Shropſhire to viſit ſome lands and manors which his lordſhip holds in that county, or for ſome other occaſions of importance which cauſed his lordſhip to be there, the report of this aged man was ſignified to his honour, who hearing of ſo remarkable a piece of antiquity, his lordſhip was pleaſed to ſee him; and in his innate, noble, and Chriſtian piety, he took him into his charitable tuition and protection, commanding that a litter and two horſes (for the more eaſy carriage of a man ſo feeble and worn with age) to be provided for him; alſo, that a daughter of his, named Lucy, ſhould likewiſe attend him, and have a horſe for her own riding with him: and to cheer up the old man, and make him merry, there was an antique-faced fellow, with a high and mighty no-beard, that had alſo a horſe for his carriage. Theſe were all to be brought out of the country to London by eaſy journeys, the charge being allowed by his lordſhip; likewiſe one of his lordſhip's own ſervants, named Bryan Kelly, to ride on horſeback with them, and to attend and defray all manner of reckonings and expences. All which was done accordingly as follows:— Parr.

"Winnington is a pariſh of Alderbury, near a place called the Welch Pool, eight miles from Shrewſbury; from whence he was carried to Wem, a town of the earl's aforeſaid; and the next day to Shiffnall, a manor-houſe of his lordſhip's, where they likewiſe ſtayed one night: from Shiffnall they came to Wolverhampton, and the next day to Birmingham, and from thence to Coventry. Although Maſter Kelly had much to do to keep the people off, that preſſed upon him in all places where he came, yet at Coventry he was moſt oppreſſed, for they came in ſuch multitudes to ſee the old man, that thoſe that defended him were almoſt quite tired and ſpent, and the aged man in danger of being ſtifled; and, in a word, the rabble were ſo unruly, that Bryan was in doubt he ſhould bring his charge no farther; ſo greedy are the vulgar to hearken to or gaze after novelties. The trouble being over, the next day they paſſed to Daintree, to Stony Stratford, to Radburne, and ſo to London; where he was well entertained and accommodated with all things, having all the aforeſaid attendance at the ſole charge and coſt of his lordſhip." When brought before the king, his majeſty, with more acuteneſs than good manners, ſaid to him, "You have lived longer than other men, what have you done more than other men?" He anſwered, "I did penance when I was a hundred years old." This journey, however, proved fatal to him; owing to the alteration in his diet, to the change of the air, and his general mode of life, he lived but a very ſhort time, dying the 5th of November 1635 (A); and was buried in Weſtminſter Abbey. After his death, his body was opened; and an account was drawn up by the celebrated Dr Harvey, part of which we ſhall lay before our readers.

"Thomas Par was a poor country man of Shropſhire, whence he was brought up to London by the right honourable Thomas earl of Arundel and Surry; and died after he had outlived nine princes, in the tenth year of the tenth of them, at the age of 152 years and nine months.

"He had a large breaſt, lungs not fungous, but ſticking to his ribs, and diſtended with blood; a lividneſs in his face, as he had a difficulty of breathing a little before his death, and a long laſting warmth in his armpits and breaſt after it; which ſign, together with others, were ſo evident in his body, as they uſe to be on thoſe that die by ſuffocation. His heart was great, thick, fibrous, and fat. The blood in the heart blackiſh and diluted. The cartilages of the ſternum not more bony than in others, but flexile and ſoft. His viſcera were ſound and ſtrong, eſpecially the ſtomach; and it was obſerved of him, that he uſed to eat often by night and day, though contented with old

(A) The author of a book entitled *Long Livers*, 8vo. 1722, which Oldys in his MS. notes on Fuller aſcribes to one Robert Samber, againſt all evidence ſays, p. 89, that Parr died ſixteen years after he had been preſented to the king, 24th of November 1651.

Parr || Parret.

old cheeſe, milk, coarſe bread, ſmall beer, and whey; and, which is more remarkable, that he ate at midnight a little before he died. His kidneys were covered with fat, and pretty ſound; only on the interior ſurface of them were found ſome aqueous or ſerous abſceſſes, whereof one was near the bigneſs of a hen egg, with a yellowiſh water in it, having made a roundiſh cavity, impreſſed on that kidney; whence ſome thought it came that a little before his death a ſuppreſſion of urine had befallen him; though others were of opinion, that his urine was ſuppreſſed upon the regurgitation of all the ſeroſity into his lungs. Not the leaſt appearance there was of any ſtony matter either in the kidneys or bladder. His bowels were alſo ſound, a little whitiſh without. His ſpleen very little, hardly equalling the bigneſs of one kidney. In ſhort, all his inward parts appeared ſo healthy, that if he had not changed his diet and air, he might perhaps have lived a good while longer. The cauſe of his death was imputed chiefly to the change of food and air; foraſmuch as coming out of a clear, thin, and free air, he came into the thick air of London; and after a conſtant plain and homely country diet, he was taken into a ſplendid family, where he fed high and drank plentifully of the beſt wines, whereupon the natural functions of the parts of his body were overcharged, his lungs obſtructed, and the habit of the whole body quite diſordered; upon which there could not but enſue a diſſolution. His brain was ſound, entire, and firm; and though he had not the uſe of his eyes, nor much of his memory, ſeveral years before he died, yet he had his hearing and apprehenſion very well; and was able, even to the 130th year of his age, to do any huſbandman's work, even thraſhing of corn."

The following ſummary of his life is copied from Oldys's MS. notes on Fuller's Worthies: Old Parr was born 1483; lived at home until 1500, æt. 17, when he went out to ſervice. 1518, æt. 35, returned home from his maſter. 1522, æt. 39, ſpent four years on the remainder of his father's leaſe. 1543, æt. 60, ended the firſt leaſe he renewed of Mr Lewis Porter. 1563, æt. 80, married Jane, daughter of John Taylor, a maiden; by whom he had a ſon and a daughter, who both died very young. 1564, æt. 81, ended the ſecond leaſe which he renewed of Mr John Porter. 1585, æt. 102, ended the third leaſe he had renewed of Mr Hugh Porter. 1588, æt. 105, did penance in Alderbury church, for lying with Katharine Milton, and getting her with child. 1595, æt. 112, he buried his wife Jane, after they had lived 32 years together. 1605, æt. 122, having lived 10 years a widower, he married Jane, widow of Anthony Adda, daughter of John Lloyd of Gilſells, in Montgomeryſhire, who ſurvived him. 1635, æt. 152, he died; after they had lived together 30 years, and after 50 years poſſeſſion of his laſt leaſe. See LONGEVITY.

PARRA, a genus of birds belonging to the order of grallæ. See ORNITHOLOGY *Index*.

PARRELS, in a ſhip, are frames made of trucks, ribs, and ropes, which having both their ends faſtened to the yards, are ſo contrived as to go round about the maſts, that the yards by their means may go up and down upon the maſt. Theſe alſo, with the breaſt ropes, faſten the yards to the maſts.

PARRET, or PEDRED river, has its riſe in the ſouthern part of Somerſetſhire in England, and being joined by ſeveral other ſmall rivers, the Evel; and about four miles from this junction, it is joined by the Tone or Thone a pretty large river, riſing among the hills in the weſtern parts of this county. About two miles below the junction of the paſſes by the town of Bridgewater, and falls into the Briſtol channel in Bridgewater bay.

Parret, Parrhaſius.

PARRHASIUS, a famous ancient painter of Epheſus, or, as ſome ſay, of Athens: he flouriſhed about the time of Socrates, according to Xenophon, who hath introduced him into a dialogue diſcourſing with that philoſopher. He was one of the beſt painters in his time. Pliny ſays, that it was he who firſt gave ſymmetry and juſt proportions in that art; that he was likewiſe the firſt who knew how to expreſs the truth and life of characters, and the different airs of the face; that he diſcovered a beautiful diſpoſition of the hair, and heightened the grace of the viſage. It is allowed even by the maſters in the art, that he far outſhone them in the glory of ſucceeding in the outlines, in which conſiſts the grand ſecret of painting. But it is alſo remarked by Pliny, that Parrhaſius became inſupportable with pride; and was ſo very vain as to give himſelf the moſt flattering epithets; ſuch as, the tendereſt, the ſofteſt, the grandeſt, the moſt delicate, and the perfecter of his art. He boaſted that he was ſprung from Apollo, and that he was born to paint the gods; that he had actually drawn Hercules touch by touch, that hero having often appeared to him in dreams. When the plurality of voices was againſt him at Samos in favour of Timanthes, in the opinion of a picture of Ajax provoked againſt the Greeks, for adjudging to Ulyſſes the arms of Achilles, he anſwered a perſon who condoled him on his check, "For my part I don't trouble myſelf at the ſentence; but I am ſorry that the ſon of Telamon, hath received a greater outrage than that which was formerly put upon him ſo unjuſtly." Ælian relates this ſtory, and tells us that Parrhaſius affected to wear a crown of gold upon his head, and to carry in his hand a batoon, ſtudded with nails of the ſame metal. He worked at his art with pleaſantry, often indeed ſinging. He was very licentious and looſe in his pictures; and he is ſaid, by way of amuſement, to have repreſented the moſt infamous objects. His Atalantis, with her ſpouſe Meleager, was of this kind. This piece was afterwards deviſed as a legacy to the emperor Tiberius, upon condition that, if he was diſpleaſed with the ſubject, he ſhould receive a million ſeſterces inſtead of it. The emperor, covetous as he was, not only preferred the picture to that ſum, but even placed it in his moſt favourite apartment. It is alſo ſaid, that, though Parrhaſius was excelled by Timanthes, yet he excelled Zeuxis. Among his pictures is a celebrated one of Theſeus; and another repreſenting Meleager, Hercules, and Perſeus in a group together; as alſo Æneas, with Caſtor and Pollux, in a third.

PARRHASIUS, *Janus*, a famous grammarian in Italy, who was born at Coſenza in the kingdom of Naples, 1470. He was intended for the law, the profeſſion of his anceſtors; but he refuſed it, and cultivated claſſical learning. His real name was Johannes Paulus Pariſius; but according to the humour of the grammarians of the age, he took inſtead of it Parrhaſius. He taught at Milan with much reputation, being admired for a grace-

Parrhaſius ‖ Parricide.

ful delivery, in which he chiefly excelled other profeſſors.—It was this charm in his voice, which brought a vaſt concourſe of people to his lectures; and among others he had the pleaſure to ſee General Trimoles, who was then threeſcore years old. He went to Rome when Alexander VI. was pope; and was like to be involved in the misfortunes of Bernardini Cajetan and Silius Savello, with whom he had ſome correſpondence; but he eſcaped the danger, by the information of Thomas Phœdrus, profeſſor of rhetoric, and canon of St John Lateran, whoſe advice he followed in retiring from Rome. Soon after, he was appointed public profeſſor of rhetoric at Milan; but the liberty he took to cenſure the teachers there as arrant blockheads, provoked them in return to aſperſe his morals. They ſaid he had a criminal converſe with his ſcholars: which being a crime extremely abhorred by the Milaneſe, our profeſſor was obliged to leave Milan. He went to Vicenza, where he obtained a larger ſalary; and he held this profeſſorſhip till the ſtates of the Venetians were laid waſte by the troops of the League: upon which he went to his native country, having made his eſcape through the army of the enemy. He was at Coſenza, when his old friend Phœdrus perſuaded Julius to ſend for him to Rome; and, though that deſign proved abortive by the death of the pope, yet, by the recommendation of John Laſcaris, he was called thither under his ſucceſſor Leo X. Leo was before favourably inclined to him; and on his arrival at Rome, appointed him profeſſor of polite literature. He had been now ſome time married to a daughter of Demetrius Chalcondylas; and he took with him to Rome, Baſil Chalcondylas, his wife's brother, and brother of Demetrius Chalcondylas, profeſſor of the Greek tongue at Milan. He did not long enjoy this office conferred upon him by the pope; for, worn out by his ſtudies and labours, he became ſo afflicted with the gout, that for ſome years he had no part of his body free, except his tongue: having almoſt loſt the uſe of both his legs and both his arms. He laboured beſides under ſo great a degree of poverty, as put him out of all hopes of being ever in a better ſituation; ſo that he left Rome, and returned into Calabria, his native country, where he was tormented a long while with a fever, and at laſt died in the greateſt miſery. He left his library to his friend Seripandus, brother to Cardinal Jerome Seripandus, who built him a tomb in the convent of the Auſtin friars at Naples. There are ſeveral books aſcribed to him; and in the dedication of one of them, his character is drawn to great advantage by Henry Stephens.

PARRHESIA. See ORATORY, N° 88.

PARRICIDE, the murder of one's parents or children. By the Roman law, it was puniſhed in a much ſeverer manner than any other kind of homicide. After being ſcourged, the delinquents were ſewed up in a leathern ſack, with a live dog, a cock, a viper, and an ape, and ſo caſt into the ſea. Solon, it is true, in his laws, made none againſt parricide; apprehending it impoſſible that one ſhould be guilty of ſo unnatural a barbarity. And the Perſians, according to Herodotus, entertained the ſame notion, when they adjudged all perſons who killed their reputed parents to be baſtards. And upon ſome ſuch reaſon as this muſt we account for the omiſſion of an exemplary puniſhment for this crime in our Engliſh laws; which treat it no otherwiſe than as ſimple murder, unleſs the child was alſo the ſervant of the parent. Parricide ‖ Parſon.

For though the breach of natural relation is unobſerved, yet the breach of civil or eccleſiaſtic connexions, when coupled with murder, denominates it a new offence; no leſs than a ſpecies of treaſon, called *parva proditio*, or *petit treaſon*; which, however, is nothing elſe but an aggravated degree of murder; although, on account of the violation of private allegiance, it is ſtigmatized as an inferior ſpecies of treaſon. And thus, in the ancient Gothic conſtitution, we find the breach both of natural and civil relations ranked in the ſame claſs with crimes againſt the ſtate and ſovereign.

PARROT. See PSITTACUS, ORNITHOLOGY *Index*.

PARSHORE, a town of England in Worceſterſhire, ſeven miles from Worceſter, and 102 from London, ſituated on the north ſide of the Avon, near its junction with the river Bow, being a conſiderable thoroughfare in the lower road from Worceſter to London. A religious houſe was founded here in 604, a ſmall part of which now remains, and is uſed as the pariſh church of Holy Croſs, the whole of which contained above 10 acres. The abbey church was 250 feet long, and 120 broad. The pariſh of Parſhore is of great extent, and hath within its limits many manors and chapelries. At preſent it has two pariſhes, Holy Croſs and St Andrew. In Holy Croſs church are ſeveral very antique monuments. Its chief manufacture is ſtockings. It contains about 300 houſes.

PARSLEY. See APIUM, BOTANY *Index*.

PARSNEP. See PASTINACA, BOTANY *Index*.

PARSON *and* VICAR. A parſon, *perſona eccleſiæ*, is one that hath full poſſeſſion of all the rights of a parochial church. He is called parſon, *perſona*, becauſe by his perſon the church, which is an inviſible body, is repreſented; and he is in himſelf a body corporate, in order to protect and defend the rights of the church (which he perſonates) by a perpetual ſucceſſion. He is ſometimes called the *rector* or *governor* of the church; but the appellation of *parſon* (however it may be depreciated by familiar, clowniſh, and indiſcriminate uſe) is the moſt legal, moſt beneficial, and moſt honourable title that a pariſh prieſt can enjoy; becauſe ſuch a one (Sir Edward Coke obſerves), and he only, is ſaid *vicem ſeu perſonam eccleſiæ gerere*. A parſon has, during his life, the freehold in himſelf of the parſonage houſe, the glebe, the tithes, and other dues. But theſe are ſometimes *appropriated*; that is to ſay, the benefice is perpetually annexed to ſome ſpiritual corporation, either ſole or aggregate, being the patron of the living; whom the law eſteems equally capable of providing for the ſervice of the church as any ſingle private clergyman †. *Blackſt. Comment.*

† See *Appropriation*.

The appropriating corporations, or religious houſes, were wont to depute one of their own body to perform divine ſervice, and adminiſter the ſacraments, in thoſe pariſhes of which the ſociety was thus the parſon. This officiating miniſter was in reality no more than a curate, deputy, or vicegerent of the appropriator, and therefore called *vicarius*, or "vicar." His ſtipend was at the diſcretion of the appropriator, who was, however, bound of common right to find ſomebody, *qui illi de temporalibus, epiſcopo de ſpiritualibus, debeat reſpondere*. But this

Parſon. this was done in ſo ſcandalous a manner, and the pariſhes ſuffered ſo much by the neglect of the appropriators, that the legiſlature was forced to interpoſe: and accordingly it is enacted, by ſtatute 15 Rich. II. c. 6. that in all appropriations of churches the dioceſan biſhop ſhall ordain (in proportion to the value of the church) a competent ſum to be diſtributed among the poor pariſhioners annually; and that the vicarage ſhall be ſufficiently endowed. It ſeems the pariſh were frequently ſufferers, not only by the want of divine ſervice, but alſo by withholding thoſe alms for which, among other purpoſes, the payment of tithes was originally impoſed: and therefore in this act a penſion is directed to be diſtributed among the poor parochians, as well as a ſufficient ſtipend to the vicar. But he, being liable to be removed at the pleaſure of the appropriator, was not likely to inſiſt too rigidly on the legal ſufficiency of the ſtipend; and therefore, by ſtatute 4 Hen. IV. c. 12. it is ordained, that the vicar ſhall be a ſecular perſon, not a member of any religious houſe; that he ſhall be vicar perpetual, not removeable at the caprice of the monaſtery; and that he ſhould be canonically inſtituted and inducted, and be ſufficiently endowed, at the diſcretion of the ordinary; for theſe three expreſs purpoſes, to do divine ſervice, to inform the people, and to keep hoſpitality. The endowments, in conſequence of theſe ſtatutes, have uſually been by a portion of the glebe or land belonging to the parſonage, and a particular ſhare of the tithes, which the appropriators found it moſt troubleſome to collect, and which are therefore generally called *petty* or *ſmall tithes;* the greater, or predial tithes, being ſtill reſerved to their own uſe. But one and the ſame rule was not obſerved in the endowment of all vicarages. Hence ſome are more liberally, and ſome more ſcantily, endowed: and hence the tithes of many things, as wood in particular, are in ſome pariſhes rectorial, and in ſome vicarial tithes.

The diſtinction therefore of a parſon and vicar is this: The parſon has for the moſt part the whole right to all the eccleſiaſtical dues in his pariſh; but a vicar has generally an appropriator over him, entitled to the beſt part of the profits, to whom he is in effect perpetual curate, with a ſtanding ſalary. Though in ſome places the vicarage has been conſiderably augmented by a large ſhare of the great tithes; which augmentations were greatly aſſiſted by the ſtatute 27 Car. II. c. 8. enacted in favour of poor vicars and curates, which rendered ſuch temporary augmentations (when made by the appropriators) perpetual.

The method of becoming a parſon or vicar is much the ſame. To both there are four requiſites neceſſary; holy orders, preſentation, inſtitution, and induction. The method of conferring the holy orders of deacon and prieſt, according to the liturgy and canons, is foreign to the preſent purpoſe; any farther than as they are neceſſary requiſites to make a complete parſon or vicar. By common law, a deacon, of any age, might be inſtituted and inducted to a parſonage or vicarage; but it was ordained, by ſtatute 13 Eliz. c. 12. that no perſon under twenty-three years of age, and in deacon's orders, ſhould be preſented to any benefice with cure; and if he were not ordained prieſt within one year after his induction, he ſhould be *ipſo facto* deprived: and now, by ſtatute 13 and 14 Car. II. c. 4. no perſon is capable to be admitted to any benefice, unleſs he hath been firſt ordained a prieſt; and then he is, in the language of the law, a clerk in orders. But if he obtains orders, or a licenſe to preach, by money or corrupt practices, (which ſeems to be the true, though not the common, notion of ſimony), the perſon giving ſuch orders forfeits 40l. and the perſon receiving, 10l. and is incapable of any eccleſiaſtical preferment for ſeven years after. Parſon.

Any clerk may be preſented to a parſonage or vicarage; that is, the patron, to whom the advowſon of the church belongs, may offer his clerk to the biſhop of the dioceſe to be inſtituted. But when he is preſented, the biſhop may refuſe him upon many accounts. As, 1. If the patron is excommunicated, and remains in contempt 40 days; or, 2. If the clerk be unfit: which unfitneſs is of ſeveral kinds. Firſt, With regard to his perſon; as if he be a baſtard, an outlaw, an excommunicate, an alien, under age, or the like. Next, With regard to his faith or morals: as for any particular hereſy, or vice that is *malam in ſe;* but if the biſhop alleges only in generals, as that he is *ſchiſmaticus inveteratus*, or objects a fault that is *malum prohibitum* merely, as haunting taverns, playing at unlawful games, or the like, it is not good cauſe of refuſal. Or, laſtly, The clerk may be unfit to diſcharge the paſtoral office for want of learning. In any of which caſes, the biſhop may refuſe the clerk. In caſe the refuſal is for hereſy, ſchiſm, inability of learning, or other matter of eccleſiaſtical cognizance, there the biſhop muſt give notice to the patron of ſuch his cauſe of refuſal, who being uſually a layman, is not ſuppoſed to have knowledge of it; elſe he cannot preſent by lapſe; but if the cauſe be temporal, there he is not bound to give notice.

If an action at law be brought by the patron againſt the biſhop for refuſing his clerk, the biſhop muſt aſſign the cauſe. If the cauſe be of a temporal nature, and the fact admitted, (as, for inſtance, outlawry), the judges of the king's courts muſt determine its validity, or whether it be ſufficient cauſe of refuſal: but if the fact be denied, it muſt be determined by a jury. If the cauſe be of a ſpiritual nature, (as hereſy, particularly alleged), the fact, if denied, ſhall alſo be determined by a jury: and if the fact be admitted or found, the court, upon conſultation and advice of learned divines, ſhall decide its ſufficiency. If the cauſe be want of learning, the biſhop need not ſpecify in what points the clerk is deficient, but only allege that he is deficient; for the ſtatute 9 Edw. II. ſt. 1. c. 13. is expreſs, that the examination of the fitneſs of a perſon preſented to a benefice belongs to the eccleſiaſtical judge. But becauſe it would be nugatory in this caſe to demand the reaſon of refuſal from the ordinary, if the patron were bound to abide by his determination, who has already pronounced his clerk unfit; therefore if the biſhop return the clerk to be *minus ſufficiens in literatura*, the court ſhall write to the metropolitan to re-examine him, and certify his qualifications; which certificate of the archbiſhop is final.

If the biſhop hath no objections, but admits the patron's preſentation, the clerk ſo admitted is next to be inſtituted by him; which is a kind of inveſtiture of the ſpiritual part of the benefice; for by inſtitution, the care of the ſouls of the pariſh is committed to the charge of the clerk. When a vicar is inſtituted, he (beſides the

4. uſual

Parſon. uſual forms) takes, if required by the biſhop, an oath of perpetual reſidence; for the maxim of law is, that *vicarius non habet vicarium*: and as the non-reſidence of the appropriators was the cauſe of the perpetual eſtabliſhment of vicarages, the law judges it very improper for them to defeat the end of their conſtitution, and by abſence to create the very miſchief which they were appointed to remedy; eſpecially as, if any profits are to ariſe from putting in a curate and living at a diſtance from the pariſh, the appropriator, who is the real parſon, has undoubtedly the elder title to them. When the ordinary is alſo the patron, and confers the living, the preſentation and inſtitution are one and the ſame act, and are called a *collation to a benefice*. By inſtitution or collation the church is full, ſo that there can be no freſh preſentation till another vacancy, at leaſt in the caſe of a common patron; but the church is not full againſt the king till induction: nay, even if a clerk is inſtituted upon the king's preſentation, the crown may revoke it before induction and preſent another clerk. Upon inſtitution alſo the clerk may enter on the parſonage houſe and glebe, and take the tithes: but he cannot grant or let them, or bring an action for them, till induction. See INDUCTION.

For the rights of a parſon or vicar, in his tithes and eccleſiaſtical dues, ſee TITHES. As to his duties, they are ſo numerous, that it is impracticable to recite them here with any tolerable conciſeneſs or accuracy; but the reader who has occaſion may conſult *Biſhop Gibſon's Codex*, *Johnſon's Clergyman's Vade Mecum*, and *Burn's Eccleſiaſtical Law*. We ſhall therefore only juſt mention the article of reſidence, upon the ſuppoſition of which the law doth ſtyle every parochial miniſter an incumbent. By ſtatute 21 Henry VIII. c. 13. perſons willingly abſenting themſelves from their benefices, for one month together, or two months in the year, incur a penalty of 5l. to the king, and 5l. to any perſon that will ſue for the ſame; except chaplains to the king, or others therein mentioned, during their attendance in the houſehold of ſuch as retain them; and alſo except all heads of houſes, magiſtrates, and profeſſors in the univerſities, and all ſtudents under forty years of age reſiding there, *bona fide*, for ſtudy. Legal reſidence is not only in the pariſh, but alſo in the parſonage houſe; for it hath been reſolved, that the ſtatute intended reſidence, not only for ſerving the cure and for hoſpitality, but alſo for maintaining the houſe, that the ſucceſſor alſo may keep hoſpitality there.

We have ſeen that there is but one way whereby one may become a parſon or vicar: there are many ways by which one may ceaſe to be ſo. 1. By death. 2. By ceſſion, in taking another benefice; for by ſtatute 21 Hen. VIII. c. 13. if any one having a benefice of 8l. per annum, or upwards, in the king's books, (according to the preſent valuation), accepts any other, the firſt ſhall be adjudged void, unleſs he obtains a diſpenſation; which no one is entitled to have but the chaplains of the king and others therein mentioned, the brethren and ſons of lords and knights, and doctors and bachelors of divinity and law, admitted by the univerſities of this realm. And a vacance thus made for want of a diſpenſation, is called *ceſſion*. 3. By conſecration; for, as was mentioned before, when a clerk is promoted to a biſhopric, all his other preferments are void the inſtant that he is conſecrated. But there is a method, by the favour of the crown, of holding ſuch livings *in commendam*. *Commenda*, or *eccleſia commendata*, is a living commended by the crown to the care of a clerk, to hold till a proper paſtor is provided for it. This may be temporary for one, two, or three years, or perpetual, being a kind of diſpenſation to avoid the vacancy of the living, and is called a *commenda retinere*. There is alſo a *commenda recipere*, which is to take a benefice *de novo*, in the biſhop's own gift, or the gift of ſome other patron conſenting to the ſame; and this is the ſame to him as inſtitution and induction are to another clerk. 4. By reſignation. But this is of no avail till accepted by the ordinary, into whoſe hands the reſignation muſt be made. 5. By deprivation, either by canonical cenſures, or in purſuance of divers penal ſtatutes, which declare the benefice void, for ſome nonfeaſance or neglect, or elſe ſome malefeaſance or crime: as for ſimony; for maintaining any doctrine in derogation of the king's ſupremacy, or of the thirty-nine articles, or of the book of common prayer; for neglecting after inſtitution to read the liturgy and articles in the church, or make the declarations againſt Popery, or take the abjuration oath; for uſing any other form of prayer than the liturgy of the church of England; or for abſenting himſelf 60 days in one year from a benefice belonging to a Popiſh patron, to which the clerk was preſented by either of the univerſities: in all which, and ſimilar caſes, the benefice is *ipſo facto* void, without any formal ſentence of deprivation.

Parſon ii Parterre.

PARSONAGE, a rectory, or pariſh church, endowed with a glebe, houſe, lands, tithes, &c. for the maintenance of a miniſter, with cure of ſouls within ſuch pariſh. See PARSON.

PART, a portion of ſome whole, conſidered as divided or diviſible.

Logical PART, is a diviſion for which we are indebted to the ſchoolmen. It refers to ſome univerſal as its whole; in which ſenſe the ſpecies are parts of a genus, and individuals or ſingulars are parts of the ſpecies.

Phyſical PART, is that which, though it enter the compoſition of a whole, may yet be conſidered apart, and under its own diſtinct idea; in which ſenſe, a continuum is ſaid to conſiſt of parts. Phyſical parts, again, are of two kinds, homogeneous and heterogeneous; the firſt are thoſe of the ſame denomination with ſome other; the ſecond of a different one: See HOMOGENEOUS, &c. Parts, again, are diſtinguiſhed into ſubjective, eſſential, and integrant. The ſchoolmen were alſo the authors of this diviſion.

Aliquot PART, is a quantity which, being repeated any number of times, becomes equal to an integer. Thus 6 is an aliquot part of 24, and 5 an aliquot part of 30, &c.

Aliquant PART, is a quantity, which, being repeated any number of times, becomes always either greater or leſs than the whole. Thus 5 is an aliquant part of 17, and 9 an aliquant part of 10, &c.

The aliquant part is reſolvable into aliquot parts. Thus 15, an aliquant part of 20, is reſolvable into $10\frac{1}{2}$, and 5 a fourth part of the ſame.

PARTS of Speech, in *Grammar*, are all the ſorts of words which can enter the compoſition of a diſcourſe. See GRAMMAR.

PARTERRE, in *Gardening*, a level diviſion of ground,

Parterre. ground, which for the moſt part faces the ſouth, or beſt front of a houſe, and is generally furniſhed with evergreens, flowers, &c. There are two kinds of theſe, the plain ones and the parterres of embroidery.

Plain parterres are moſt valuable in England because of the firmneſs of the Engliſh graſs turf, which is ſuperior to that of any other part of the world; and the parterres of embroidery are cut into ſhell and ſcroll work, with alleys between them. An oblong, or long ſquare, is accounted the moſt proper figure for a parterre; and a parterre ſhould indeed be always twice as long as it is broad, becauſe, according to the known laws of perſpective, a long ſquare always ſinks to a ſquare; and an exact ſquare always appears leſs than it really is. As to the breadth of a parterre, it is to be proportionable to the front of the houſe; but leſs than 100 feet in breadth is too little.

There ſhould be on each ſide the parterre a terrace walk raiſed for a view, and the flat of the parterre between the terraces ſhould never be more than 300 feet, at the utmoſt, in breadth; and about 140 feet in width, with twice and a half that in length, is eſteemed a very good ſize and proportion. Parterre, Partheni-um.

PARTHENIUM, a genus of plants, belonging to the monœcia claſs, and in the natural method ranking under the 49th order, *Compoſitæ*. See BOTANY *Index*.

END OF THE FIFTHTEENTH VOLUME.

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